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ORIGINAL ARTICLES.

A NEW RING FOR USE IN INTESTINAL ANASTOMOSIS.

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Of all the devices in use to hold together the cut ends of the bowel, in the operation of intestinal anastomosis, Murphy's button, Senn's decalcified bone plates, and Abbe's catgut rings are the best, and any of these may be more desirable in a given case than the others.

Murphy's button is the simplest, and more than any of them facilitates rapidity of work; but there are a few cases in which its use would seem to be attended with uncertainty. They are among those with old and extensive adhesions of the bowel, in which for various reasons it may not be possible or wise to sever all the adhesions, and in which consequently the lumen of the bowel may at some point be left narrowed after the operation. In such cases the button, after detachment from the point of operation, may become lodged in a narrowed segment of the bowel and form a permanent obstruction.

Senn's bone plates being digestible, are free from this objection, but they are expensive and must be obtained from the instrument maker, which cannot always be done at short notice. Of course it might be said that the surgeon should keep some on hand constantly, and thus be prepared for emergencies; but then, with the multitude of other little things to care for, we all are apt to overlook occasionally the need of things which may be used perhaps only once in a year.

Abbe's catgut rings, which he himself discarded in favor of plain suturing, answer this last requirement in so far that they can be made by the surgeon; but it cannot be done at short notice. They must be made of moistened gut, and when finished dried under pressure that their form may be retained. Then, in sterilizing them at the time of operation, if they, with the attached silk threads, are put into the antiseptic solution a little too soon, or delay occurs after they have been put in, they are apt to warp and curl out of shape. As the same distortion is apt to occur in the bowel, they are not adapted for use in end to end anastomosis, and furthermore it is difficult to make them in good ring form.

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Under the stress of necessity I hit upon a ring which I think possesses all the advantages of Senn's bone plates and Abbe's catgut rings, without the objection I have made against Murphy's buttons.

Being called some distance from home, two years ago, to operate for fecal fis-

tula, resulting from strangulated hernia, I ordered a set of Murphy's buttons. The day for the operation had been fixed and the buttons came to hand late. Upon examining them it occurred to me that in case there would be extensive adhesions and matting together of the bowel, which it might not be expedient to undo entirely, there might be left bands which would constrict the bowel so as to prevent the passage downward of the button after its detachment from the seat of operation. Having on hand neither bone plates nor catgut rings, and time being short for making of the latter after Abbe's method, I constructed two sets of rings, using catgut and rubber tubing. Taking a piece of light rubber tubing with one-eighth inch calibre, three and one-quarter inches long, and a piece of chromicized number six catgut eighteen inches long, I pushed one end of the gut through the tube, then carried it around and passed it through again in the same direction, and so on until the tube was filled with strands of gut. Pulling upon the ends of the gut then until the ends of the tube were brought in apposition I had a complete ring. The ends of the gut were then cut off one-half inch from the tube and stuck into it in opposite directions, and the ends of the tube closely approximated. The result was a smooth elastic well-shaped ring, an inch in diameter. Now four small openings were cut into one side of the ring with a scissors, equal distances apart, and so placed that the break in the tubing was midway between two of them. Through these openings a medium-sized silk thread was passed on a cambric needle, around one side of the enclosed gut, through the tubing on the opposite side, back through the same puncture, around the other side of the gut, and out at the opening, the first point of entrance. The thread was now around the gut in the tube and both ends out at the opening made with the scissors. A firm slip knot was now made and slid back into the tube, while the thread was drawn tightly on the gut, care being taken to have the knot small enough to pass easily through the hole in the tube, so that it might not hold the tube after solution of the gut subsequent to the operation. The thread was then cut at a length of nine inches, and a knot put in the end to prevent the needle dropping off. The four threads having been passed in this way the ring was finished, and ready for use. In this case the button could fortunately be used and the rings were consequently not needed.

A year and a half later a case of fecal fistula, resulting from an operation for suspensio uteri by another person, came under my care. The fistula had existed four months, and various efforts had been made to heal it. I began the operation with the intention of using Murphy's button, but also got ready my rings.

Upon opening the abdomen a large mass of agglutinated bowel was found beneath the fistula, and the adhesions were so thick and vascular as to make their detachment slow and tedious work. After loosening about a foot of bowel above and below the opening, so as to give myself room for work, it seemed best on account of free bleeding and a very friable condition of the tissue, to leave the balance of the mass undisturb-

ed. As there were probably several feet more bowel held in it, I feared that a Murphy's button might not pass through, and hence used the rings.

The rings were placed in the bowel, and the threads carried through it about one-quarter inch from the edges. The two ends were then whipped together with a continuous silk suture, through all the coats, over about one-fourth of the circumference of the bowel, the middle of the line of suture being over the attachment of the mesentery. The threads on the rings were then drawn tightly and tied, and a line of continuous fine silk suture from side to side, run through the peritoneal coat over the whole line of approximation.

The patient who was fifty years old, recovered without an unfavorable symptom. The rubber tubes were not found in the stool, but as nearly six months have elapsed since the operation, it may be presumed that they have passed, or at least they can do no harm.

The fistula was so high in the jejunum that the discharges from it were entirely free from fecal odor, and that, as the patient expressed it, "there was hardly any use of drinking water because in a few minutes it would run out of the hole."

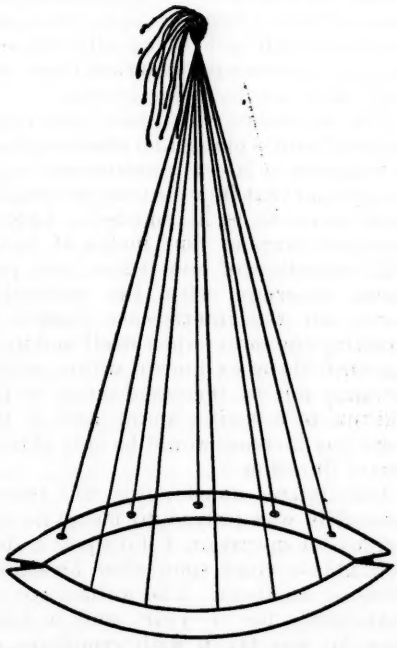
My object is not to present these rings as a substitute for Senn's bone plates when they are at hand or can be procured in good time, but in their absence in cases of emergency, and in lieu of Murphy's button when as in this case there is doubt as to whether it would find its way out of the bowel. Under these circumstances they are superior to anything I have ever seen offered for this purpose.

For use in lateral anastomosis with linear or elliptical opening an ellipse could easily be made by using two pieces of tubing of the desired length and pulling on the ends of the catgut until the ends of the tubing would be brought together in pairs. The silk threads could then be put half an inch apart and opposite each other in pairs, in the same way as into the rings. In position in the bowel, this would really be only a modification of the old quill suture as applied on other parts of the body—modified by the presence of the soluble catgut in the quill.

The advantages of the rings are, that they can be prepared in a few minutes by the surgeon; their trifling cost; the smooth and firm surface of the rubber tube which is to lie against the bowel; the protection which the tubing gives to the contained catgut by which its solution in the bowel is retarded; that after the catgut dissolves the rubber will drop away from the silk ligatures, not as a ring, but as a small straight piece of thin flexible tubing, which can hardly, under any conditions, be arrested in its downward passage.

Suturing of the ends of the bowel without mechanical support, either laterally, as Abbe has done since he put aside his rings, or end to end is not applicable to all cases.

It is necessary to have good healthy peritoneum at the seat of operation, which cannot always be obtained in cases of fistula in which extensive inflammation with agglutination of the bowel around the opening has occurred. If



the peritoneum has been involved in an inflammatory process, it disappears in the newly-formed tissue or becomes so fragile that it will not hold stitches sufficiently, unless two or three rows are made. Then the operation is certainly

tedious, and much slower than when rings are used, and the surgeon cannot leave his patient with the feeling of security which the rings afford. Of course this objection may be met by excising the denuded portion of bowel, but conservative surgery would certainly not permit such a sacrifice simply as an expression of preference of one method over others.

In the case here presented several inches of bowel were cut off to avoid making the anastomosis where nearly the whole circumference of the organ was bare of peritoneum, and yet at the place of election the Lembert sutures put around the rings gave way at several points, and required reinforcement by a second line. Without the firm support of the rings inside of the Lembert sutures, I would have been loth to drop the bowel into the abdomen, with those weak spots in the seam; but with them, I had no fear of the result. It would have been impossible in this case to have found, on the two feet of bowel which was extricated from the mass, two spaces four and a half inches long with sufficient healthy peritoneum to suture them and hold them together side by side.

The objections which have been urged against Senn's plates and other mechanic supports in lateral anastomosis, upon the ground that they obstruct peristalsis, seem to me to be ill founded. Lateral union of three or four inches of bowel will, regardless of how it has been produced, interfere with the peristaltic wave, but the interference caused by doubling the bowel upon itself and uniting the folds by six lines of suture, would certainly not be increased much by the addition of a flexible splint, and at the worst the increase would be only of temporary duration.

That lateral anastomosis will retard peristalsis was proved to me in an experimental operation I did upon a dog with Abbe's rings soon after he called attention to them. The animal got on comfortably for a year and a half. Then he was taken with symptoms of obstruction of the bowel, with which he died in the course of a week. Examination showed the blind end of the upper section of the bowel, which at the time of the operation was half an inch in length below the opening between the two ends, very much dilated and packed with a hard mass the size of a walnut, composed of hair and other solid matter, which extended above the edge of the opening. The opening had contracted from an original slit one and a half inches in length to an ellipse three-quarters of an inch long. This aperture was larger than necessary to permit the passage of any of the particles which made up the mass, and hence the collection was not due to obstruction, but to arrested peristalsis in the pocket below the opening and consequent deposit and accretion of material there. In this way the mass increased in size until it did obstruct the artificial opening.

The operation with these rings is decidedly easier to perform and can be done in much shorter time than any form of lateral operation. Should I be called upon to use them again, which would be done in any case in which a transverse operation could be performed, and for any reason Murphy's button might be thought unsuitable, I would modify the operation by putting three interrupted catgut sutures through the approximated ends, in the part not covered by the continued suture of one-quarter the circle opposite the mesentery, placing them between the threads on the rings. With rings one and one quarter inch in diameter, this would place a suture embracing the whole wall of the bowel for about every quarter inch of line, and this with the rings well adapted, and one row of Lembert's stitches around them would make a perfect union.

"Is it true that your father has made an assignment?" asked the agitated lover of his *fiancée*. "All his vast fortune is swept away," she sighed; "but you are left, Algy." "I should say I was left. Great Heavens!"—*Detroit Free Press.*

Miss Bluestock—I tell you, man is but an earth-born worm. Julie—You couldn't have been very lively as an early bird, my dear!—*Truth.*

"How did the critics treat Jingoll's music?" "Um, well, the kindest thing they said about it was that it was not original."—*Washington Star.*

PROFOUND TOXIC EFFECTS FROM THE DRINKING OF LARGE AMOUNTS OF STRONG COFFEE.*

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On July 10, 1896, E. M. F., a traveling salesman, came to this city, arriving about seven P.M., and with great difficulty walked to his hotel, about one square from the depot. He then complained of great nervousness and involuntary contractions in the legs and arms on attempting to move these parts. On arriving at the hotel, he went to bed, feeling that if he could rest for a while his condition of nervous excitement would pass away. However, he continued to grow worse, and about 9.30 o'clock sent for me. After carefully questioning him, I elicited the following history:

He is thirty years of age, married and has one child. He has always enjoyed good health, though he has not been very strong. He is a graduate in medicine, although he has never engaged in practice. The family history is negative, except for the occurrence of epilepsy on the maternal side. During his youth, the patient had numerous attacks of *petit mal*, but never any distinct epileptic seizures. He has never had an attack similar to the present one, and this dates back three weeks, when he started on a tour to New York to place several large orders for his firm. During the course of his work, he was up until one or two o'clock in the morning, and after retiring would get but three or four hours of sleep. Upon waking, he would order a pot of strong black French-drip coffee sent to his room and would drink this before eating his breakfast, which was very light and simple in character. In the course of the day, he drank ten or twelve large cups of this kind of coffee and ate but little food. If he went to a saloon with a customer, he would order wine or stimulant for him, but coffee for himself, and by this free use of coffee, he was able to fight off the fatigue which naturally attended this mode of life. This course was kept up for three weeks preceding his coming to this city. He drank some liquor, but not enough to produce any appreciable effect, and he was never intoxicated at any time in his life—a fact that is very important in the differential diagnosis, for a number of his symptoms were those of beginning *mania a potu*.

His pulse was ninety-six and full, but weak; his respirations shallow and numbering twenty-four to the minute. The pupils were normal, the tongue slightly coated, the bowels regular, the skin moist but not flushed, and his expression was agitated with the fear of some impending danger. His muscles were in such a state of tension that upon the slightest movement of arms or legs, clonic spasms occurred, though none was present when he lay perfectly relaxed, which, however, his exceedingly nervous condition would not allow him to do. If he tried to sleep, he would be seized with hallucinations just before losing consciousness, imagining that disasters were about to overtake him and seeing all kinds and shapes of images and objects. Then he would start up with fright and find himself in the greatest nervous excitement. When he stood up, he could close his eyes or look at the ceiling without wavering. His knee-jerks were slightly exaggerated, but sensation was perfect.

The diagnosis of coffee-intoxication was based upon the history of excessive coffee-drinking for three weeks, the absence of liquor-drinking in quantities sufficient to produce constitutional effects, the nervous symptoms (spasms of muscles, hallucinations and extreme excitability), and the absence of an attack simulating *petit mal* in any way.

The indications for treatment were to clean out the bowels, to steady the heart by a stimulant, and to give an hypnotic that would quiet without increasing the

*Read before the Philadelphia County Medical Society, October 28, 1896.

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mental symptoms already present. For the first, I gave calomel, one-sixth grain every half-hour for eight doses, followed by a saline. For the heart, I gave caffein citrate, one grain every three hours, knowing that this would at the same time partly offset the withdrawal of the coffee from his system. Trional (ten grains every two hours for three doses) acted admirably as an hypnotic. I did not give morphin, which might have had a quicker effect, because of its tendency, in many cases, to produce mental disturbances without thoroughly relaxing or overcoming the nervous tension of the patient. Three hours after this treatment was instituted, the patient was resting more easily and asked for a glass of milk, which he took with a rel ish. He then went to sleep and awoke the next morning, after five or six hours of sleep, very much refreshed. I interdicted the use of coffee, gave a tonic of arsenic, strychnin and quinin, and directed the man to spend several weeks at the seashore, as his former condition of *petit mal* was very liable to become one of true epilepsy unless he raised his system to the best state of health and maintained it there. He went to the shore and two weeks later reported himself as very much improved and feeling better than he had for months.

I have seen two persons who would be mildly intoxicated by drinking a large cup of strong coffee, but have never seen any one affected as this patient was, nor have I been able to find reports of any similar case in the literature of the subject.

ALIENISM IN PRIVATE PRACTICE.*

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Among those departments of medicine which have, with the increase of knowledge, grown beyond the realm of general practice, none has been by common consent more completely abandoned to the specialist than the subject of insanity. No member of the profession is more thoroughly set apart from the general body than is the alienist. This is doubtless because the general practitioner, as a rule, considers himself exempt from any responsibility in the matter and commits his patient to the asylum with much the same feeling that he leaves corns to the chiropodist, or carious teeth to the dentist.

In many a medical school the student does not hear two lectures a year on the subject, never sees a case, and is lucky if he learns before graduation that maniac is not synonymous with lunatic, that melancholia is a technical name for a definite condition, and that asylum inmates are not habitually either chained, caged, or clubbed. This indifference to an admittedly important subject rests, I believe, on two superstitions, one of which is erroneous and the other very far from justifying the conclusions drawn from it.

In the first place it may be said that alienism is a subject of unusual complexity—the study of a lifetime; that unless one's studies are to be supplemented by unusual clinical facilities it is scarcely possible to attain more than that little knowledge against which the proverb warns us. Now, these identical words might be urged in discouragement of any branch of the healing art. In no department has science attained finality; in no realm is the reward of special skill denied to concentration in purpose and persistence in practice. Yet it would be a lamentable state of affairs when such reasoning would content the average man to sit down in blissful ignorance of the pathology of eye and ear, of nose and throat, of skin, rectum, and genitalia, yet in any of these the patient will be better served by the specialist alone than in the department we are considering. The

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woman doomed to sterility, the man alarmed by his ever-darkening vision, the youth suffering from urethral stricture will not long stand in doubt of what particular variety of aid he is in need. Still, the awful specter of insanity, patent though it be to even the casual observer as it poises the fatal blow, strikes yet from behind, and the victim falls all unknowingly.

Since the alienist cannot afford to be ignorant of any subject that interests the general practitioner, he has the right to expect the same intelligent aid that is given to the opthalmologist, the gynecologist, or the operating surgeon. Indeed, the rank and file of the profession habitually, and in the main satisfactorily, take it upon themselves to decide the most delicate and difficult question with which we have to do, namely, of what degree of irresponsibility justifies abridgement of a man's personal liberty.

The most experienced of asylum physicians, even after his personal observation of a case has been supplemented by days of watching by trained nurses, must, in some cases, give his opinion on this point with reservations; yet any man may be called upon to decide upon one or two brief interviews, drawing his case history from relatives who may be careless on the one side, or dishonest on the other, and who are necessarily in this regard ignorant and prejudiced. Under the circumstances let each one of us beware that our limitations are those of science and not of our own indifference.

When a question of fact arises in criminal proceedings, twelve chosen men must coincide to deprive one of his liberty, but when the agreement of two out of a numerous profession on a matter of opinion as to lunacy is enough to doom the subject to confinement, surely such opinions should not be lightly assumed.

A second consideration which deters the student from the consideration of mental diseases is an exaggerated idea of the hopelessness of these conditions. It is, I think, not too strong a statement that the laity do not contemplate the possibility of cure, while the profession accepts the report of favorable reports from insane hospitals with marked mental reservations; yet it is true that the hospital, not asylum physician, receiving an average number of cases, has more room for hope than if he received an equal number of consumptive, asthmatic, or cancerous patients. If we consider cases, not at the time of entering the hospital, but at the early period when they first might be diagnosed by a properly alert family physician, the prognosis improves immeasurably.

Assuming then that the physician should be qualified not only to detect insanity, but to discriminate varieties, to appreciate the causation and to conduct treatment in proper cases. What field should he find for the exercise of these powers? First, his just conception of the importance of heredity in the causation of insanity will inspire him with a sense of responsibility, not only to his contemporaries but to generations yet unborn.

It is not at present practicable to interfere in individual cases with the marriage of the physically unfit, the work to be done is to educate the public mind on this point. When superstition has in every age claimed her train of celibates, it is not too much to hope that science may some day claim hers.

We all recognize the importance of that moral and intellectual training of the elastic mind of infancy, and no woman worthy the name of mother neglects this for her own offspring. How much more should she insist that a human soul be not loaded with evil tendencies older and more deeply rooted than even the lessons of the nursery. The romantic girl marrying a drunkard to reform him, answering arguments with the reply that it is no one's business but her own, must be taught that the sins of the father shall be visited farther than the penitence of the mother and that she may be but a small minority of those whose interests are to be considered,

The man conscious of his own physical degeneracy should be taught that a human soul must not be denied what is freely conceded to a horse race or a hunting dog,—the right to a heritage of health—and when these principles are generally accepted to whom do they apply? Not only to those individuals

in whose lives insanity is, in common phrase, hereditary, but to all those families showing a distinct neurotic tendency. Epilepsy, dipsomania, chorea, some variations of hysteria and even neuralgia may in some instances denote degenerate tendency.

Habitual criminals and sexual perverts are not likely to be effected by public opinion until it crystallizes into legislative enactment. Happily we are coming to recognize more clearly that these are to be dealt with not so much with regard to the evil they have accomplished, as to that they are capable of. Each particular case is to be decided not in accordance with any arbitrary or inflexible rule, but by a careful weighing of good and evil tendencies by the competent man most familiar with them.

Much less important than the inheritance of the neurotic tendency, are the conditions of stress inevitable in civilized life, but wantonly exaggerated by pernicious mental hygiene. But even in this realm of lesser importance there is much to be done in the way of prophylaxis.

How many business men driving themselves to their utmost limit are braced up by their physicians with strychnia, coca, or kola; have their rebellious nerves soothed to contentment with abnormal conditions, by bromid, chloral or morphia; drug their brains to unnatural rest that they may again drive them to unnatural exertion; all in the face of the plainest warnings of impending breakdown! There is a mental hygiene not less definite and important than the physical. The brain no less than the muscle is entitled to its proportionate period of exercise, recreation and rest.

Among other causes of insanity, the various drug habits and unnatural sexual indulgence commonly receive all the attention they are entitled to. Perhaps more, since quite as often as not they are only early symptoms of disease rather than its cause. The various chronic diseases on which insanity often depends—syphilis, anemia, nephritis, diabetes, or derangements of liver, or intestine—receive their treatment independently of this consideration, yet, in any given case, they are not to be forgotten as a possible cause. Finally, we may mention a point which is much neglected, and on which a physician's advice should not be considered intrusive.

The deadly monotony of some lives, the *tedium vitæ* as exemplified in the daily routine of many farmers' wives, is a prolific source of material for our asylums. A veterinarian will seldom fail to comment on an overworked horse or an underfed cow for fear of losing his fee, and our profession ought to be able to rise at least to an equal height of disinterestedness. Passing from the field of prevention to that of cure we find there is still much to do. In the first place, the general practitioner should recognize that hospital treatment presents certain advantages of its own—the isolation of the patients, both from the cares of life on the one hand, and from the mistaken kindness of foolish friends on the other, the constant watchfulness of numerous attendants, together with the calm and scientific attitude of mind with which they regard the patient—can be but feebly imitated in a private house.

In certain cases these factors are almost indispensable in treatment; in other cases the circumstance of the patient will not warrant the great expenditure necessary to secure him proper attention in his own home. In all of these cases it is the duty of the family physician to combat the popular prejudice against the asylum, insisting that the question of hospital treatment shall be decided upon its merits exactly as it would be in any other special line.

When the practitioner's own best judgment leads him to decide against the hospital, he will treat the case in accordance with its indications, availing himself of consultation or of expert advice as he would in other cases. Time will not permit the consideration in detail of the conditions he should be prepared to meet, nor is it a subject for a single afternoon's study. At some future time I may speak of the special forms of insanity most likely to be encountered in private practice. Enough for the present, if I have made clear to your minds what is deeply impressed on my own, that there is a great field for noble effort, and that research along

this line will be to all of us richly repaid.

DISCUSSION.

DR. LANDIS.—The subject is an interesting one and it is true, as Dr. Hill says, that the general practitioner is apt to consider that mental alienism is outside of his sphere of duties. The general profession have not paid so much attention to the subject as they ought. In regard to the home treatment I regret that the doctor did not go into the subject more in detail. We all meet with cases presenting symptoms of incipient mental alienation, and they are very perplexing.

It is often difficult to decide as to the necessity for separating the patient from family and friends, and, as he tells us, two men assume a great responsibility in judging the case, especially when they are not familiar with the family history and many details small in themselves but having important bearing on the case.

I believe that in primary cases a certain amount of moral treatment by family and friends may be the best thing. In more serious or advanced cases better results may be attained by removing the patient from all previous environments and impressions which may be accessory to the persistence of the delusion.

DR. KEISER.—During the present century no department of medicine has been more thoroughly revolutionized than the treatment of insanity. No farther back than the earlier part of this century, hospitals for the insane were little better than dungeons for criminals. The lash, torture, manacles, and chains were recognized as important factors in the treatment. The crazier a man was, the crazier a device, apparently, was thought necessary to cure him.

All kinds of diabolic tortures were employed, even to keeping the patient submerged in water. In the early part of the century a ripple of reform made itself felt which later developed into a mighty wave which swept all over the civilized world. The pioneer in this reform in France was Pinel. It is recorded by him that one day while passing through a mad-house he chanced upon a patient chained to the wall, in which condition he had been kept for forty years. Pinel decided to liberate him, and approaching the prisoner acquainted him with his intention. To this the prisoner responded: "You are mocking me."

"No," said Pinel, "if you will promise to put on the clothes which I will provide and obey my commands I will liberate you." This the prisoner willingly acceded to. The chains were struck off, but it was fully fifteen minutes before the miserable wretch could stand upon his feet. So long had he been confined that the cramped limbs almost refused their office. When the man became able to stand he was conducted from the prison walls into the open air. With his face bathed in the glorious sunlight for the first time in two score years the only explanation he could be heard to utter was "How beautiful!" As he hobbled along so he continued to exclaim: "How beautiful!"

In 1815 the British Parliament appointed a committee to investigate the condition of the institutions where were confined the insane, and reported them in a deplorable condition. One English writer described their insane asylums as menageries of wild beasts where food was thrown in and straw raked out. I rejoice to-day that we have with us a member of our society who is connected with one of the model institutions of our country at Wernersville, Pa. I have visited that institution and can testify as to the evenness in its management, the general air of cleanliness, and absence of signs of restraint.

I must beg to differ from those who advocate the home treatment of mental alienation. The proper place for most cases is in an asylum or hospital where proper attention can be given to the carrying out of those details which is impossible in a private house. Also it is well to remember that the feeling of odium which formerly attached to the necessary detention in such institutions has not the weight which it formerly had, and, owing to the manifest improvement in treatment, the feeling of distrust has vanished.

A generation ago it was common to see on the streets of almost every small town and hamlet numbers of people suffering with mild forms of insanity. Now it is the exception to see such cases. Too much leniency, however, is even now shown toward forms of insanity seemingly mild which may develop homicidal tendencies. There was an instance in this city a few months since.

A recently liberated patient stabbed three or four persons and was sentenced to the Eastern Penitentiary, from which institution he will probably come out crazier than ever. All cranks and all persons showing homicidal tendencies should be restrained. The treatment of criminals remains pretty much in the same condition as the former treatment of the insane, and there is much need of prison reform. Nothing is gained by degrading any man. Many a poor wretch has been started upon the downward road on account of the commission of some trivial offense, coupled with inability to pay a fine.

DR. BURR.—May I ask Dr. Hill what proportion of the whole number of admissions to the Wernersville Hospital are discharged cured?

DR. NORTHROP.—The major portion of those admitted to the Wernersville asylum are chronic cases of some years' standing. Many of them are admitted after having been previously treated in a hospital for acute cases, and favorable results are not so frequently anticipated.

DR. HILL (closing).—I must apologize for not following the subject more in detail, and at some time in the future shall take pleasure

in presenting a paper dealing more fully in the different forms and causes of insanity, taking up puerperal mania, epilepsy, paresis, etc.

In reply to Dr. Burr I would say that we do not see our cases early, some of them being of from one year to twenty years' duration before admission, so that improvement in many cases is not looked for.

CHLOROFORM ANESTHESIA DURING SLEEP.*

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Four weeks ago I had an experience which possibly is rare to the profession at large, as it was to me, being the first in my career as a practitioner, but which I think very proper to present here for several reasons. First, that it may go on record as a contribution to forensic medicine, and next, because I believe it will be of interest to this society and provoke a discussion which may be of still added value.

A little boy, three years old, was brought to me by his mother to be relieved of the trouble commonly called tongue-tie, which it was alleged interfered much with his power of articulation. The little fellow would not speak to enable me to verify this fact, neither would he open his mouth by request or bribe, to let me examine the parts, and it was only after something of a struggle that I succeeded in getting a sufficient view to show that the *frenum linguæ* was abnormal and that snipping would most likely be advantageous.

But it was folly, in my judgment, to attempt even this trivial operation on this patient without anesthesia, and hence I made an appointment for next day, and called in my neighbor Dr. Rigg to assist, the mother declaring she could not help me the "*least bit.*" While waiting for Dr. Rigg the child fell asleep and was laid on a reclining chair where he remained until the doctor's arrival. Some effort on the part of his mother failing to awaken him, we agreed to administer chloroform while asleep and thus avoid a fierce struggle which I personally would have had some timidity in overcoming, with the treachery that chloroform sometimes betrays under such circumstances, and ether would of course only have invited this struggle by the irritant and suffocative effect it usually has at first on the respiratory tract.

Dr. Rigg very delicately administered the drug, the patient's pulse and respiration showing the usual changes of progressive narcosis, but without any apparent disturbance of slumber.

When the conjunctival reflex seemed abolished, an attempt was made to open the mouth, but resistance and some movement of the limbs were manifest. With a very little more chloroform, complete relaxation ensued, and the frenum was satisfactorily exposed and snipped. Normal sleep seemed to follow, the pupils being contracted.

I had forgotten to give instruction to have his meal prior to coming to my office, omitted, and some vomiting of food occurred, but after about ten minutes the little fellow awoke without showing any material surprise at his surroundings. He was also more amiable than the previous day, for at request he protruded his tongue almost to his chin, a feat his mother said he had never previously accomplished. A noticeable feature of his awakening act, was the almost sudden dilatation of his pupils a moment after opening his eyes, with a gradual return to normal in the course of a minute.

Dr. Rigg and myself exclaimed almost simultaneously substantially. "Well! chloroform *can* be given during sleep without awakening the sleeper." This expression denotes a certain mental impression common to each of us, that chloroform at least as a rule, would awaken a sleeper when administered by inhalation before complete narcosis ensued.

Another inference very naturally sug-

*Read before the Berks County Medical Society, October 13, 1896.

gested, is that I, as a graduate of thirty-three years, and Dr. Rigg with three years in the profession having a similar first impression, were very similarly taught and that, on some points at least, no change of opinion in what was taught had occurred, or is it possible that this is a question that the schools do not discuss? But there must be some reason why both of us seemed to have a like impression, or perhaps better, why we both were inclined to be surprised at our experience, and I venture the assertion that not a few of you here present, and not a few of the profession at large have at least hitherto possessed like uncertainty on the subject.

Permit me to offer an explanation so far as my personal relation is affected, and I regret that Dr. Rigg is not present to account for himself. But I suspect that all having the same questioning that I had, were more or less influenced by the same agent that I believe largely moulded my thought, and for this reason I aim to discuss the matter in its medico-legal bearing.

Having never before, to my recollection, seen an anesthetic administered during sleep, and certainly having never been called upon for such service of personal interest, I was never prompted to search medical literature, or question teachers of medicine about the subject until recently, and I find there is decided paucity of fact or speculation covering this point in medical works.

But that great educator of the world —the *public press*—is more prolific of statements in this line. How often do we read in the daily papers of burglaries committed in an inexplicable manner because the robbers roamed all over the house, tumbling everything topsy-turvy, even in the chamber where lay those sleeping while being robbed, and never conscious of the crime committed until they awoke in the morning. Then, because they cannot understand how it was possible they were not disturbed, and determined to account for it in some manner, they jump to the conclusion that they were under the influence of chloroform at the time. But I have never, to my recollection, seen any account of *proof* of such method given either by detectives who worked up the case, by the confession of convicted criminals, or the testimony of witnesses at the trial. All was supposition. Neither can I recall having read rebuttal evidence in such charges.

Again with equal frequency we read in the newspapers of rapes and highway robberies committed by the perpetrator's throwing a handkerchief saturated with some stifling liquid over the face of the victim, which produced *immediate unconsciousness*, during which the criminal accomplished his purpose without opposition. Here, as above, I do not recall of reacting evidence that proved either *pro* or *con* of the question, except in the late celebrated Pitezel case, where an eminent specialist, if I am correctly informed, denied in the witness-box the possibility of such criminal use of chloroform.

Nevertheless the laity are thus taught and believe in such possibility. But physicians, as a class, rely almost wholly upon fact and professional experience, many times multiplied, to establish a truth in medicine, and when allegations, theories, or opinions have not been thoroughly proven, we doctors are slow to accept them, and thus often call upon ourselves from the laity, and especially from charlatans and quacks, the charge of being bigoted and slow to learn. But true scientists know that only through such tedium can true science be evolved, and regard it a waste of valuable time to answer others who make such charge.

Thus in the absence, or at least because of the meagreness of proven statistics on the question at issue, I suspect the generality of our profession were, and are, in a state of skepticism as to the ability of inducing chloroform narcosis during physiological sleep, without arousing the sleeper.

With but limited sources of authority at command, and limited time for more research, I beg to submit what I have touching this question.

In Taylor's *Medical Jurisprudence*, Bell edition, 1892, it is stated that "Chloroform narcosis can without doubt be induced during sleep," referring for authority to Harvey, *Med. Times and Gazette*, 1880; Dolbeau, *Amer. Jour. of Hygiene*, Boston, June 17, 1884; and Elliot, *N. Y. Med. Record*, 1885, p. 29.

Woodman & Tidy, Ed. 1882, p. 457, under the question: "Can chloroform be

administered for improper purposes?" replies: "We know, however, that, comparatively, the insensibility from chloroform vapor is only slowly induced. It would be difficult, therefore, to administer chloroform forcibly and against the will, while, of course, the stories of immediate anesthesia produced by it are but idle fables."

Still, it might be administered to persons asleep without much difficulty (*Lancet*, Oct. 5, 1872, and Oct. 12, 1872), and this seems the only possible condition under which it could be conveniently used for improper purposes unless considerable force was employed to prevent the person from struggling, which, under ordinary circumstances, would be an almost insurmountable difficulty to its use.

In Tidy's Legal Medicine, Series 1884, Vol. III., p. 119, relative to "Can a female be violated unknowingly whilst under the action of narcotics and intoxicants?" this is said: "Chloral hydrate, opium, chloroform, ether, and narcotics have doubtless been used to facilitate criminal intercourse, but it is to be remembered that none of them (not even chloroform or ether) induce immediate insensibility. Hence, the stories of some dose or another having been administered, or a handkerchief forcibly held to the nose, followed by instant insensibility, are to be looked upon with gravest suspicion. Still, a rape has been committed under partial insensibility of ether (*Med. Gaz.*, Vol. XL., p. 865), and we can understand how even a very slight anesthesia might facilitate the commission of the crime." Attention is also called to the delusions at times co-incident with anesthesia, whereby rape might be (and has been) charged falsely.

Under illustrative cases are noted as follows:

No. 25.—The prosecutrix claimed *instant insensibility* by something held over her face when she was violated. Prisoner proved an alibi.

No. 26.—Charge, rape, against a dentist by a girl rendered *instantly* insensible by chloroform. It was proved that she knew all the time what was going on.

No. 27.—Charged, some liquid was given, which, in tasting, rendered the prosecutrix instantly insensible, when she was violated. Prisoner denied the charge.

Now, I submit that all the above references (being all I could command) do not establish an opinion beyond simple probabilities.

In conversation with members of the legal profession, I find them having different and even opposite views, though the majority give no credence to assertions of *instant insensibility* from any known anesthetic, and but few entertain the opinion that chloroform can be given to a sleeper without his being awakened.

The lay idea that chloroform, for criminal purposes, can be administered by instillation through some crevice, keyhole, or other aperture in a room, to the degree of profound anesthesia, is all humbug.

I have ransacked my library and those of some medical brethern for more information, but without avail, and therefore conclude that the undisputed facts having a bearing on this subject are, as before stated, meager. Confirmatory to the assertion in Taylor's *Medical Jurisprudence* — quoted above, I submit one case beyond question:

It may be argued that our patient being a child would sleep more profoundly than an adult. I am willing to believe that children as a rule sleep more soundly than many adults, and yet some adults are as difficult to awaken as any child. I have seen country market venders, men and women, returning home sit in their wagons asleep, allowing their horses to drive themselves, and not awaken to your loudest shout to give you part of the road. After several consecutive nights of loss of sleep, I, on one occasion, in a somnambulistic manner, arose to a call for obstetric service, promised to come, and returned to my bed, remembering nothing of my action, until next day when another practitioner, asked me with unmentionable expletives, why I didn't attend my cases when I promised.

The element of time necessary to produce anesthesia sufficient for clinical purposes, is not wholly unanswerable, because every one with somewhat of ex-

perience has seen patients, who seemed to have become unconscious to pinchings and other rather violent assaults on their bodies, within two minutes after commencement of the giving of chloroform and even ether.

Again in favor of the affirmative of this question, may be made the report of a certain writer, that by the application of cocaine to the nasal passages, the usual irritant effects of these anesthetics are abolished. The same thing attains in physiological sleep, as the many accidental asphyxias from illuminating gas indicate.

It therefore does seem to me that chloroform may be administered during normal sleep, to the degree of perfect anesthesia without arousing the sleeper, more frequently than we generally believe. At the same time, it would be well if our newspapers should discredit the popular thought of the manner in which criminal use of the drug is alleged as frequently as they publish the affirmative assertions and thus prompt would be blackmailers on the pretext of rape to cease causing the needless expense and public odium of court trials on such grounds.

DISCUSSION.

DR. WENGER.—I had an experience two weeks ago similar to Dr. Cleaver's, the case being that of a little boy with an abscess in the gluteal region. I proposed to call after office hours, at which time the father would be home from his work and could assist me. I found the child asleep, and proposed to give the anesthetic during sleep, which I did, giving in all not more than one or two teaspoonfuls of chloroform and guarding the administration according to the corneal reflex. I then opened the abscess and washed it out. The patient, after a few minutes, revived sufficiently to vomit, and then went to sleep and did not wake until morning.

DR. LONGAKER.—I have a similar experience to relate. Two years ago, in connection with Dr. Loose, I operated upon a little girl who had been run over by a trolley car. We went to the house at ten P.M., and found the child asleep. We gave chloroform and amputated two toes. The child awoke later and knew nothing about the operation.

DR. KEISER.—I was much interested in Dr. Cleaver's paper, but I think he is in error when he affirms that there is no teaching from the colleges on the subject. If I am not mistaken I was taught, during my novitiate at the University of Pennsylvania, that both chloroform and ether could be administered during sleep. I wish to enter protest in this connection against the practice of the use of chloroform in these cases. Within the last four years we have had two deaths from chloroform in this community.

DR. HOFFMAN.—Three months since, in the case of a child, I opened an abscess, washed, packed and dressed the cavity, and the patient did not wake until everything was over.

DR. BEAVER.—It never occurred to me that there was any doubt in the professional mind as regards the possibility of administering anesthetics during sleep. But I have always considered it dangerous to do so, especially when the patient to be operated upon is a stranger and the physican is not familiar with the condition of the heart and nervous system. I fail to see where the advantage comes in from a medical point of view. As it concerns forensic medicine, it is a matter of some interest. A great many people get into the habit of inhaling chloroform to produce sleep. I have lost one of my good friends in that way. I was called at three A.M. by his wife, and found him dead with a handkerchief lying under his head, which he had saturated with chloroform and placed there to produce sleep. It did produce sleep of the everlasting variety, and ever since that experience I have had the opinion that chloroform could be given to almost anyone during sleep.

DR. CLEAVER (*closing*).—I cannot help congratulating myself just a little bit that the discussion on my paper has brought out so many similar experiences from other men, as I think it is important that these cases should be put on record for the benefit of medical jurisprudence. Such instances may be of very great advantage in legal cases which may arise in the future.

During my service in the army I had occasion to use chloroform in a large number of cases under the most marked circumstances of disadvantage in the way of skilled assistance. In two years I never had a death, and the universal success with the agent may have made me careless as to its dangers. After my return to civil practice, I have seen several cases which presented dangerous symptoms, and the result has been to make me a coward in the use of chloroform.

With the most skillful use it is treacherous, and untimely results cannot be avoided. I will say, however, that in the case cited in my paper I had examined the heart, and if there was any excuse for my procedure, it was that the boy was an ill-governed child, would fight like a Turk, and it was questionable whether there would not have been as great risk in giving the drug under compulsion.

DR. BURR.—One element of danger in giving an anesthetic during sleep has not been referred to during the discussion. In many persons during sleep the vitality is at much lower ebb than during waking hours,

and it is possible that the depression produced by the vapor, added to this lower vitality, might induce a fatal termination. I recall a very sad case in point. A young woman, prominent in the highest ranks of society, some years since upon retiring to her room after the exhaustion of a social affair, administered to herself a moderate dose of chloral hydrate. She retired to rest and was found dead in her bed in the morning.

COMMUNICATIONS.

THE PREVENTION OF DEFORMITY IN FRACTURES OF THE EXTREMITIES.*

JOHN B. ROBERTS, M.D., PHILADELPHIA.

The deformity following broken bones is a frequent cause of litigation because the disability and unsightliness of the condition are readily apparent to the patient and his friends. For the same reason the surgeon is more often subject to unfavorable criticism than the physician, whose failure to do the best possible is often unknown to the public. So annoying is the sight of a deformed limb, and so great is the responsibility and anxiety assumed in taking professional care of a bad fracture that some practitioners feel glad to have such cases fall into the hands of other physicians or receive treatment at hospitals.

Mistaken diagnosis is a common cause of deformity after fracture. It is necessary not only to know that a fracture exists, but also to be acquainted with the situation and general character of the lines of separation if the surgeon is to obviate deformity. Many physicians fail in this important part of the treatment because they neglect to compare the injured with the uninjured limb; because they have forgotten the anatomical outlines of the region and do not take the trouble to look at the dry bones of the part while studying the injury; or because they fail to examine the patient under general anesthesia, which prevents pain and relaxes the muscles.

I have seen fractures overlooked because these precautions have been omitted. This is perhaps most often the cases in fractures near joints, where the normal mobility of the part and the irregular contour of the bones obscure the deformity and unnatural mobility due to the fracture. It has at times surprised me to find a peculiar curve in a bone of an injured limb existent also in the skeleton of the opposite side, proving that which I at first supposed was an abnormality due to fracture, to be a natural configuration peculiar to the patient. Every doctor should have in his office the parts of a human skeleton. At times nothing so clearly straightens out an obscure diagnosis as a moment's inspection of the bare bones. An articulated skeleton is not necessary and is rather expensive. The separated bones can be obtained through any medical student at very little cost from a dissecting-room. Finer and more costly preparations, but no better for study, can be bought from the surgical instrument makers.

General anesthesia is not employed as often as it should be in obscure injuries. A few inhalations of ether will relax the tightened muscles and permit the surgeon to freely manipulate the injured limb. The freedom from pain thus obtained is also desirable and prevents the unwise hurry which sometimes is the cause of erroneous treatment at the hands of skilful and careful medical men.

When it is impossible to make out the exact character of the fracture even under etherization, and there exists bony deformity which the surgeon is

* Read before Berks County Medical Society, July 14, 1896.

unable to correct, it may, in my opinion, be wise to make an aseptic incision down to the broken bone. This clears up the diagnosis, permits proper readjustment of the fragments, and only converts a closed fracture into an open one. With our present aseptic and antiseptic methods of operating, the incision adds little risk to the case, and may be of incalculable value in overcoming displacement and preventing permanent deformity and disability. If the practitioner having charge of the case is not familiar with aseptic surgery he should seek the aid of a modern surgeon familiar with aseptic details. Suppuration must, of course, be avoided, and energetic relief measures must be promptly instituted if septic contamination occur. The wound, even if it look well superficially, must be opened and drained if septic process begin in it.

The Roentgen ray now gives us an almost perfect method of discovering the lines of fracture without incision. It is not always available, unfortunately. When the diagnosis of fracture has been made, complete reduction of the fragments should be promptly accomplished. This is usually not a difficult task if the medical man is acquainted with the normal outline of the bone, compares the injured limb with the normal one, and uses the skeleton of the arm or leg as a test of accuracy. The swelling which sometimes obliterates the outlines may often be greatly diminished by elevating the limbs for a few minutes, rubbing it with the hands from the fingers or toes towards the body and encircling it for a few minutes with a rubber or flannel bandage firmly applied by spiral, or spiral and reverse turns. These manipulations urge the serum upwards toward the heart and lessen the distension of the subcutaneous cellular tissue. The bandage must not be allowed to remain on the limb for more than a few minutes, lest it cause gangrene. It usually cannot be applied unless the patient be etherized, as it gives pain.

In the "greenstick" fractures of childhood much force may be demanded to bring the bent bone into its normal shape. This should usually be done, even if the fracture is thereby made complete. The exception I make to this rule is in greenstick fractures of the clavicle. Complete fractures of the clavicle are often difficult to keep in perfect apposition. I therefore frequently desist from applying force sufficient to cause complete separation of the fragments in little children with greenstick fractures of this bone. I believe that the slight deformity, which is left after partial restitution of the normal outline by moderate force, is likely to be less conspicuous than that which may result if I completely separate the fragments and unavailingly try to keep the ends in perfect coaptation. If the child is very young the deviation in shape will probably diminish as the bone grows in length and thickness. If the child is nearly full-grown, I am much more apt to attempt complete reduction even if the bone does give way under the pressure of my fingers.

In impacted fractures considerable force is frequently needed to disentangle the interlocked ends. Unless this is accomplished, reduction is incomplete and deformity will persist. I think, at present, of but one instance in which it is unwise to attempt to separate the impacted fragments. Fractures of the neck of the femur in the aged have a characteristic indisposition to repair by bony union. Hence, the interlocked ends of the broken bone should not be pulled apart in the attempt to make a diagnosis or to obtain perfect restoration of the bony outline of the femoral neck. The deformity that will occur from the impaction is far less important than the disability certain to remain after treatment, if the fragments are separated and non-union occurs. If the bony entanglement is undisturbed, osseous or cartilaginous union becomes more probable. This advice to avoid meddlesome activity applies only to fractures of the femoral neck in the aged. Under other circumstances the impaction should be overcome and careful coaptation of the fragments sought.

The fractures which probably most often give rise to deformity is that of the lower end of the radius with backward displacement of the lower fragment. In this injury the lower fragment is very often impacted or caught upon the dorsal edge of the upper frag-

ment .It requires force suddenly applied with all the power of the surgeon's hands to drive the lower fragment forward into its proper relation with the shaft of the bone. This is neglected, I fear, by a great majority of practitioners. Deformity much greater than necessary and a protracted convalescence, with pain and stiffness of the fingers, are the consequences of this error. Immediate and thorough reduction will usually result, in a rapid cure, with little or no noticeable deformity. I have sometimes bent the lower end of the radius across my knee before I could disentangle the fragments and bring the lower one into place. This is not often necessary, unless the fracture is some days old when first subjected to treatment. Deformity, after unsuccessfully treated fractures, may be prevented or relieved by refracturing the callus which unites the fragments. This is occasionally necessary in instances where no treatment has been given. The bone is bent across the edge of a padded table or over the surgeon's knee, and after the band of union has been ruptured, is treated as a recent accidental fracture. This may be done with success at the expiration of even six months, since the seat of fracture remains weaker than the rest of the bone for a long time. There are various methods of applying the power of the surgeon who wishes to refracture such vicious union of a fracture; and the bone may be weakened or divided by drills, the osteotome or the saw; but these matters are foreign to the present discussion.

To obviate the occurrence of distortion, after reduction and coaptation have been accomplished, some sort of retention apparatus is required.

In fractures of the thigh I usually employ permanent traction, by means of a weight attached to the limb with adhesive plaster. This overcomes the tendency to overlapping. Any tendency to lateral displacement I antagonize by sand-bags laid along the sides of the thigh and legs, or by moulded splints. The moulded splints may be made of bookbinders' pasteboard, wet with water, and applied to the limb before becoming dry, or of gauze saturated with plaster of Paris water.

The best and probably the cheapest splints for fractures of the extremities are moulded gypsum splints. Plaster of Paris or gypsum is obtainable in every vicinity from storekeepers or druggists and costs but a few cents a pound. When added to water, it forms a creamy mixture, which, as everybody knows, soon "sets" on, hardens into the familiar plaster used for covering the inner walls of our houses. A few strips or layers of cheese-cloth or mosquito-netting, saturated with a moderately thick solution of plaster and laid upon the broken limb after the fracture has been set, soon stick together and hardens, forming a splint which actually fits every inequality of the limb's surface. The rigidity of the hardened gauze and plaster splints may be made as great as the surgeon pleases, by placing more layers of gauze saturated with the plaster mixture, upon the outside of the first layers, before the plaster in them has "set." If there is a tendency for any fragment to become displaced, the surgeon's finger pressed for a few minutes upon the outside of the splint, so as to hold the piece of bone in position, makes a permanent prominence on the inside of the splint, which acts as a substitute for his finger and does the same service as long as the splint is worn.

These moulded splints are held in place by a roller bandage, and are far better than any carved or manufactured splint ever made. They fit as a man's skin fits and need no padding to prevent bed-sores. One splint may be applied on each side of the limb, or a single splint may be made so as to encircle the whole or nearly the whole of its circumference. Neighboring joints may be covered, and therefore supported by the splint; or openings may be made in the splint where a wound needs frequent dressing or inspection.

A little common salt added to the plaster mixture, or the use of hot water for the mixture, hastens its setting; borax or cream of tartar makes it harden more slowly.

Such splints, when applied as a first dressing, should never be made to entirely encircle the limb, since the swelling incident to the fracture may make them too tight and cause much pain

and even gangrene. If the plaster dressing is applied so as to encircle the limb, it should be cut open on one side its entire length before tho surgeon leaves the patients.

To prevent late deformity the surgeon must insist that no strain be put upon the newly-formed callus until it is hard enough to bear the burden. This is particularly important in fractures of the femur and tibia, which in locomotion carry the entire weight of the patient's body. Oblique fractures of these bones are especially liable to bend at the seat of the union, if the patient walks on them too early, without proper artificial support. It often requires very little additional support, but that amount may be essential.

Quite recently I saw a gentleman with a deformed hand because he had insisted upon rowing shortly after being treated for fracture of a metacarpal bone. The callus was too soft, and he now has a curved bone instead of a normally straight one.

DISCUSSION.

DR. MURRAY WEIDMAN.—Physicians are frequently charged with causing deformity which is the result of the carelessness of the patient. In doubtful cases I should not hesitate to cut down and find out exactly what the condition is, especially as we have so many aseptic appliances for holding fractured ends together, such as catgut, ivory plates, silver wire, etc. In fractures and dislocations I reduce the dislocation first, and then the fracture. In green-stick fracture I reduce the deformity even if I have to break the bone.

One case is as simple to treat as the other. The method of surgery has changed in late years, and no surgeon should hesitate to know exactly what he has to deal with.

Physicians should be careful in promising perfect results in all cases of fracture, especially as any case may be compromised by the carelessness of the patient. A case in point: A patient of mine with fractured patella had ligamentous union one-fourth inch. Before sufficient time had ensued he went to call on a friend on a cold, sleety night, fell, and refractured the patella; result, union at four inches.

DR. ISRAEL CLEAVER.—I regret that Dr. Roberts did not allude to fracture of the patella. I should be glad to know his method of treating that unruly bone. I have never seen a case that did not result in deformity. I should also have been pleased to hear him discuss intracapsular fracture of the neck of the femur. There are often serious objections made by the laity, friends of the patient, etc., to our carrying out the surgical procedure recommended.

DR. D. B. D. BEAVER.—I would like to inquire of Dr. Roberts as to the frequency in which this operation of cutting down on the fractured bone is required. In my experience it has arisen seldom, and occasions are rare in which fracture cannot be diagnosed. Movement and shortening are always present.

After determining the presence of fracture, it seems to me that occasion seldom arises for cutting down on it; neither does it seem indispensable to know whether the fracture is horizontal or oblique. With proper extension in either case, may the normal length of the limb be preserved. There are few who would not object to the procedure.

I think it is important to adapt the dressing to the disposition of the patient. I don't use so much dressing as I did years ago, and I get better results. There is a disposition among the younger generation to bundle up the limbs too much. The result is that the patient is restless and uncomfortable, and more likely to get the fractured bones out of place.

DR. RHOADS.—In fracture of thigh I use extension, sand-bags, elevation of the foot of the bed, and weight. I use more plaster than any other dressing. Don't like felt or wooden splints. Canton flannel furnishes a good absorbent for the plaster. It is well to apply cosmoline to the limb before dressing, which prevents sticking of the plaster to the hair. I have had four or five cases of fracture of lower end of the radius, in which I have used the bond splint with no resultant deformity.

I am afraid of compound fracture; always have been. Have a case of compound fracture of clavicle in the hospital and don't like it a bit. There are the torn and bruised tissues at the bottom of the wound which differentiate the case from an ordinary simple incision. Those tissues may suppurate. It seems to me there would be trouble in getting good union without suppuration, especially in private families without hospital facilities.

DR. HOFFMAN.—I would like to consult Dr. Roberts' opinion in regard to the following case: While prison physician some years ago, a man was brought in with gun-shot wound of the thigh. The attendants failed to locate the bullet, and bandaged the limb. When I saw the patient the limb was enormously swollen and painful. I removed the bandage and found a suppurating area extending two inches away from the wound. After suppuration ceased, union of the fractured extremities took place, but there was for a period of one year and a half much swelling of the bone, which at this time is almost reduced to normal. What was the cause of this excessive enlargement of bone and reason of its persistence?

DR. BACHMAN.—Legal cases are continually arising where the physician is accused of malpractice in the treatment of fracture, and bad results always reflect upon the skill of the attendant, notwithstanding they are often the result of the carelessness of the patient.

There is a suit in court at the present time, in regard to which case I am positive that the resultant deformity is more due to the carelessness of the patient than lack of skill or carefulness of the attendant.

I had a case recently; one of those injuries of the shoulder-joint in which it is difficult to reach an accurate diagnosis, and in which there was possibility of dislocation complicating fracture. I determined to find out just what the trouble was. Upon careful examination by usual methods, I found crepitus present, but none of the usual signs of fracture of the anatomical neck. The case resolved itself into a fracture of the coracoid process.

DR. ROBERTS, closing, said:—In regard to the case of Dr. Hoffman's, I congratulate him upon the fortunate outcome of such a serious case. The thickening to which he refers, and which persisted for so long, probably resulted either from chronic osteitis or from the enclosure of a small piece of necrosed bone.

There is frequently a good deal of thickening in the site of an old fracture which is not bony but due to thickening of the periosteum and the fibrous coverings, and which disappears in time. Now-a-days, in selected cases I feel like opening up freely, as I feel practically sure of keeping the parts aseptic. With clean instruments, clean hands, and clean surroundings, I have no fear of making matters worse or complicating the case by free incision. In fact, though a compound fracture when split open may in appearance look worse, the good results have convinced me of the benefit to be obtained by such procedure. I am prepared and willing in future cases of simple fracture to open them if it seems advisable, though I admit that the necessity will seldom arise.

The trend of surgery is to hesitate no more toward making an open wound where it seems necessary in ordinary cases of simple fracture than in fractures of the patella, which are frequently so treated by many surgeons with good results. I myself have never found it necessary to thus operate on a patellar fracture.

The X-Rays are valuable in diagnosing fracture. Some time ago I experimented with the X-Rays in the following manner: I broke several forearms in various ways in the dissecting-room, then took skiographs, and the prints showed beautifully and clearly the line of fracture. The prints showed the line of fracture better than the negatives. The more I use plaster as a dressing the better I like it. I don't use the Bond splint for fracture of the lower end of the radius. I believe it to be a very bad splint for the purpose. If the fractures are properly reduced they don't need much support, and adhesive plaster seems to fill all needs. Occasionally I use the Lewis metal splint.

Dr. Beaver is right when he says too much dressing is used. We are apt to bundle things up too much. In regard to the kinds of fracture, where incision might seem to be indicated, I will instance the elbow-joint. Fractures in that region are frequently difficult, if not impossible, to reduce by ordinary methods. In some of these cases there may be a small piece of bone inverted in such a way that it is impossible to properly reduce the fracture until we can put our finger on it and use direct force to replace it. Such cases may be thoroughly relieved by aseptic incision and replacing the bone.

DR. ROBERTS demonstrated by chart the futility of undertaking to positively diagnose between an intracapsular and extracapsular fracture of the hip-joint, and at the same time asserted the uselessness of such a diagnostic point in the treatment. He also showed that a fracture of the neck of the femur may be partly within and partly without the capsule, depending upon the line of fracture. One reason for this is that the line of attachment of the capsular ligament is not the same on the anterior and posterior surfaces of the neck. Thus the fracture may be intracapsular in front and extracapsular behind the joint. The treatment in either case is the same. Dr. Roberts further said, upon inquiry, that he was not inclined, if it could be avoided, to open the knee-joint in fracture of the patella and recommended the encircling ligature which does not enter the joint, and therein differs from the Barker ligature. In easy cases adhesive plaster answers, but usually he uses a modification of Malgaigne's hooks.

A case of an infant dying of senile debility at the age of eight months is reported from St. Louis. The body is said to be that of an ordinary infant in good health. The head was extraordinary in many respects; in size it compared with that of an adult and each successive day accentuated its physical peculiarities. The thickness and texture of the hair gave the infant the appearance of an adult; and hair grew on its face. All the features developed with equal rapidity and the countenance assumed an expression of mature thought. At length the mouth became drawn, the features wrinkled, and rapid physical decay was followed by death.—*Am. Medico-Surg. Bulletin.*

"You men must really be careful and not run over people," said the president of the surface-car line to his motormen. They listened in respectful attention, and he continued, "Every person you kill is one less passenger to ride."—*Judge.*

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PHILADELPHIA, SATURDAY, OCTOBER 31, 1896.

EDITORIAL.

SPITTING IN PUBLIC PLACES.

The American people have two ubiquitous manifestations of vulgarity. One is the irresistible desire to leave an autograph wherever the sublimity of nature or the ingenuity of man attracts a crowd; the other is indiscriminate spitting, regardless of the desecration of natural beauty, or of the contamination of places where human beings must live and congregate.

We have used the word *spit*, rather than the supposedly more elegant one *expectorate*, because the ejected matter may consist of saliva, of mucus drawn backward from the nose or collected from the throat, of chyme eructated from the stomach, or of matter raised from the lungs and thus strictly *expector-ated*.

Many children, and not a few grown people, play a sort of solitaire with the aid of saliva. This form of spitting is disgusting rather than harmful. A second class—from an economic standpoint—of spitting, is the deposition of mucus, eructated matter, tobacco juice, etc., where it will defile skirt-hems and foot-wear. Here, too, aside from the presence of a small amount of putrescible matter and bacteria already widely disseminated, we have to deal with a problem economic and sentimental

rather than sanitary. Moreover, if ladies choose to sweep up the filth of the street with long trains, it is their own lookout. Finally, we have true expectoration, coming from the deeper air-passages and pulmonary vesicles.

THE REPORTER believes that the danger from ubiquitous spitting is practically limited to the possibility of the transmission of tubercle bacilli. The diplococcus of pneumonia is not likely to be present in the sputum of one able to appear in public. It is questionable if the bacteria found in the saliva of healthy persons and usually considered pneumonic, are truly so. Even if they are, pneumonia depends so largely on exposure to cold and defects of the circulation, that it is one of the least contagious of the infectious diseases. We must recognize the possibility that bacteria of diphtheria, of some of the ulcerative forms of stomatitis, and even of typhoid and other deeply-seated diseases, may be communicated by dry sputum. There is little or no absolute proof of such communicability, but the large number of cases of contagious disease, of which the origin remains a mystery, and in which direct exposure is distinctly denied, allows some reliance on theoretical argument.

THE REPORTER is discussing this subject from the practical, rather than from the scientific standpoint. While it is desirable that highways, public buildings and conveyances of all kinds should be free from human filth, as well as from pathogenic bacteria, it is as yet impossible to enforce a rigid law against spitting. Reformers are always prone to forget that the refined, honest and conscientious members of society need no laws, and are affected by them only when their literal interpretation happens to be contrary to the spirit which led to their enactment. Thus a law must always be framed, not with reference to stating an ideal condition, but with regard to its practical applicability to persons who are dishonest, vulgar and immoral. A law against spitting must not aim higher than the average sentiment of the policeman, the police court judge, the janitor, conductor or care-taker, upon whom its enforcement must depend. It must not too much curtail the highly-prized "personal liberty" of the two-legged swine, against whom it is directed; otherwise popular sympathy will immediately be aroused to prevent the enforcement of the law, to secure its repeal and to prevent an attempt to substitute a milder measure. Neither can fine scientific discriminations be made. The law cannot say: "You may leave the scourings of your pharynx or a pool of tobacco juice where others are forced to tread, but you must not spit, if you are the seat of contagious disease." No! The law must be concise; it must apply impartially to the well and to the sick—to spitting of any kind, and it should also include the loathsome practices of the handkerchiefless stratum of society.

Some day we may hope for one simple prohibition applying to all bodily excretions, and protecting all public places from contamination, but the municipality cannot enforce nor consistently enact such an ordinance till it fulfills its own duty of furnishing freely, clean and convenient retiring places, at short distances, throughout its territory.

For the present, we believe that the best practical solution of the problem consists in an enactment against spitting in any inclosed place to which public access is possible. This would include not only public buildings, in the strict sense of the word, but railroad and street-cars, and other public conveyances, stores, offices, hotels, depots, theatres, churches and other congregating places. The act should not stop with providing a fine,

but should make arrest easy and simple, preferably by granting police powers to all citizens. It should also compel, under suitable penalty, the owners or managers of the places named to inforce the law. Street cars, in most cities, have long contained conspicuous notices forbidding spitting, but no efficient method of enforcement has been reached, nor does the municipality usually lend its support to the feeble efforts of the street-car companies. Conductors do not, and under present conditions cannot, well enforce such a regulation. They are already between the devil and the deep sea in endeavoring to carry out the arbitrary and often foolish rules of a heartless corporation without, at the same time, giving offense to passengers who are altogether too zealous in finding fault with these underpaid and overworked servants of the company and the public. Under the rules of a company, with which we happen to be familiar, any complaint to which the company pays attention at all, carries the certainty of punishment, since the conductor must lose a half day's time and wages in going to the office and answering the charges. The man who has no more regard for his fellow-creatures than to force them to walk through slimy puddles of sputum, is capable of taking the meanest kind of vengeance on the officials to whom we must look for the enforcement of the law against spitting. Neither is it pleasant for the mere private citizen to remind the spitter that he is not in a cattle-car, nor to suggest arrest, nor even to make the humblest possible plea for common decency.

Any ordinance, therefore, which deals with this crime against health and cleanliness, should give ample support to the complainant and should provide for the prompt and easy arrest of the offender and for efficient punishment. At the same time, the law should not destroy its own efficiency by forbidding spitting out-doors till a vast amount of work has been done in educating popular sentiment.

ABSTRACTS.

THE DISINFECTION OF ROOMS BY SULPHUROUS ACID GAS.*

One so frequently sees the common method of disinfecting rooms with sulphurous acid gas referred to in such terms as "inefficient," "unscientific," and "useless," that many health officers must have experienced doubts as to whether it was not their duty to discontinue it.

It is claimed mainly on bacteriological grounds that the process is inefficient; that the SO_2 generated by the combustion of one pound of sulphur in 1,000 cubic feet of space is not sufficient to kill the specific organisms of infectious disease, more especially when no measures are taken to charge the atmosphere with moisture.

I have collected the available evidence from six sanitary areas in and around London, and in every case sulphurous acid was the disinfectant employed. In order to make out the worst possible case against the method, suppose we adopt the view that all further cases of scarlet fever and diphtheria which occur, on the same premises, within fourteen days of fumigation of such premises, are to imperfect disinfection, and even then it will be found that the number is very small. There were, in all, 1,330 premises disinfected by the local authorities above referred to on

*Henry Kenwood, M.B., D.P.H., F.C.S., Medical Officer of Health, Stoke Newington, etc. *British Medical Journal.*

account of these two diseases, 409 in respect of diphtheria, and 921 in respect of scarlet fever; and altogether there were fifty-five cases of either scarlet fever or diphtheria, which would come into the above category. So that if we take this extreme and unjustifiable view, sulphurous acid disinfection broke down 4.1 times in every 100. This fact will serve to show that if disinfection is necessary at all—and there is no difference of opinion upon that point—then our common and official method is not "useless."

But there is the possibility of infection from the preceding case; there may be a persistence of the same source of infection which accounted for the disease in the original case; there is the chance of coincidence that No. 2 case may have contracted the same fever away from the premises in question within the period above specified; and even the return of clothes and bedding from the disinfecting station would all have to be excluded as possible causes. It is impossible, of course, to say to what extent the 4.1 per cent. of cases would be reduced if all these other possible causes of infection could be taken into account; but it may fairly be surmised that the reduction would appreciably reduce this already small figure.

It is, moreover, necessary to bear clearly in mind that what we ask of sulphurous acid is that it shall disinfect the walls, ceiling, floor, and bare surfaces in a room. No one contends that the method—any more than the French and German official methods—has sufficient penetrating power into bedding, clothing, carpets, curtains, etc. These can and should be removed for steam disinfection.

Our method consists of two stages: First, the charging of the atmosphere from six to eight hours with about 1 per cent. of sulphurous anhydrid gas, by means of burning one pound of sulphur to every 1,000 cubic feet of space in the room; secondly, the thorough aëration of the room.

The second stage is an essential part of the process in order to rid the room of SO_2. By some it has been argued that it is this thorough aëration that does the good, and not the preliminary sulphuring. It is easily demonstrable that the diphtheria bacillus would be at most attenuated by such aëration, and not killed.

Walter D. Severn has given me valuable collaboration in a few bacteriological experiments, in which we principally directed our attention to the Klebs-Lœffler bacillus of diphtheria, for the following reasons: It is concerned in the production of one of the diseases in which the disinfecting power of SO_2 is most commonly relied upon. It is easily cultivated, its cultures are unmistakable, and owing to the rapidity of growth over accidental impurities in the culture media employed, it is an extremely convenient organism to employ in experiments of the nature undertaken.

The room employed in these experiments was in my own house. It was nearly square in form, 8 feet 8 inches in height, and had a capacity of 2,004 cubic feet. Before each experiment the room was left at rest for some time, the inoculated swabs, etc., were then placed in position, and the room was then treated by the man who does the disinfecting work of the parish, precisely as if there had been a case of infectious illness in it. Each experiment comprised six different tests applied at the same time at three different levels in the room—that is, two at the level of the floor, two on a sideboard 3 feet 8 inches from the floor, and two on a bracket 6 feet 6 inches from the floor, and the experiment aimed solely at determining the effect produced by six to eight hours' exposure to an atmosphere containing SO_2 not exceeding 1 per cent.

The apparatus used was very simple, and consisted of (*a*) swabs. These were pieces of glass rod drawn out and fused into a ball at the drawn out end, with some cotton wool carefully twisted round the narrow part to a little over the diameter of the wide part of the glass. A second thick band of wool was well twisted round the rod lower down to serve as a plug for the protecting test tube used to cover the swab. The whole arrangement was sterilized in the oven, allowed to cool, and inoculated with a lively specimen of B. diphtheriæ as soon as possible before using, by gently passing the wool over the sloping surface of a serum culture. These swabs were taken into the room,

and the protecting tube removed, thus exposing the bacilli on the wool to the direct action of the SO_2. Afterwards the swab was well rubbed on the surface of a sterile serum tube, which was placed in the incubator at 33° to 35° C., to ascertain if any development of B. diphtheriæ took place. The swabs were made with supports formed by bending the free end of the glass rod into a triangular base.

(*b*) Lints. These were pieces of lint, 2 inches by 1 inch, placed in Petri dishes, two in each dish, which was then sterilized in the oven at 160° to 180° C. One piece of lint received with a sterilized platinum spatula needle, a streak of B. diphtheriæ, and the other a streak of either staphylococcus aureus or streptococcus pyogenes. The lid of the dish was removed in the room, and replaced after the fumigation. Then each piece of lint was rubbed on the surface of Lœffler's alkaline serum bouillon and hydrocele glycerine agar, and the tubes were placed in the incubator.

Each special test in each of the four series of experiments was duly controlled; thus for every two or three swabs used another similar swab was kept, after being infected for a similar period, and rubbed on to the surface of the nutritive medium at the same time as the swab which had been exposed to the SO_2. Similar checks were applied to the pieces of lint. The control tests showed active and typical growth in every case.

In the first series all three swabs and all three lints were sterile.

In the second series, a serum tube inoculated from one swab showed a late (inhibited) growth of the Klebs-Lœffler bacillus after three days, but no growth was obtained from the other two swabs or from the three lints.

In the third and fourth series no growth of B. diphtheriæ was obtained from any of the swabs or lints.

In one or two instances out of the twenty-four experiments made, growths of aërial impurities appeared in the culture media; but neither of the forms of staphylococci or streptococci grew in any of the experiments after disinfection. In the first three experiments Petri dishes of solidified serum inoculated on the surface with streaks of B. diphtheriæ were also employed as a further experiment. In all but two cases (one in each of the first two series) these, somewhat to our surprise, were also rendered sterile, and in the two instances referred to, the growth was markedly inhibited.

In Series 1 and 2, one tin of liquefied SO_2, alleged to contain twenty ounces, was employed in each case.

In Series 3, two such tubes were employed.

In Series 4, two sulphur candles were burnt, each containing one pound of sulphur.

After each of the four experiments, the room was entirely freed from the SO_2, and then exposed again to the disinfectant precisely as it had been in the experiment, and, after four hours, I entered the room with my mouth and nose protected by a handkerchief moistened with a solution of washing soda, and took a sample of the air towards the centre and at the level of half the height of the room.

The samples were hermetically sealed and removed to my laboratory, and the whole of the SO_2 was removed by means of a dilute solution of bromine in water, and the sulphuric acid was then precipitated as barium sulphate.

The precipitate was collected, washed, dried and weighed, and the original SO_2 calculated. Where one tube of liquefied SO_2, alleged to contain twenty ounces, was employed (Series 1 and 2), the sample of air, taken after four hours, furnished: Experiment 1, 0.26 per cent. SO_2; experiment 2, 0.25 per cent. SO_2.

Where two tubes of liquefied SO_2, each alleged to contain twenty ounces, were used (Series 3), the air showed 0.50 per cent. SO_2. Where two sulphur candles, each alleged to contain one pound of sulphur, were employed (Series 4), the sample furnished 0.88 per cent. SO_2.

Therefore, where the bacillus diphtheriæ was not killed, it was very markedly inhibited, even where the SO_2 did not much exceed one-quarter per cent., and the bacillus was killed where the SO_2 exceeded one-half per cent., the above figures have sole reference to the SO_2 in the air in the centre of the room at a height of four feet, and after the lapse of four hours.

I believe that in practice it is wisest

to retain some method which, like our official one, is simple, cannot be skimped, necessitate the exposure of the room to abundance of fresh air, and the actual disuse of the room for many hours. Disinfection by chlorine, formaldehyde, and vaporized carbolic are good, and would also meet requirements, and there is evidence that the first two are more efficient than SO_2; but is one justified by facts in recommending any change at all?

THE ADVANTAGES AND DISADVANTAGES OF THE USE OF STERILIZED MILK FOR INFANT FEEDING.*

The term sterilized, as applied to milk, has been very vaguely used during the last few years. At first no doubt it was restricted in its application to milk, which had been so treated as to be rendered germ free. Now, however, it is generally understood to refer to that which has been kept for some minutes at the temperature of boiling water. It is in this latter sense that I propose to use the expression to render milk approximately germ free. Carbonate of soda, bicarbonate of soda, boracic acid, borax, salicylic acid, quick-lime, hydrogen peroxide, carbonic acid, and formalin have been used. The necessarily small quantities which can be used of the substances have been proved, on the one hand, to be quite ineffectual for the destruction of germs, and on the other they are most injurious to the consumer when taken for a considerable period. The use of compressed oxygen and the passing of an electrical current through the milk have been suggested as sterilizing agents, but nothing practical has come out of these proposals.

Dr. Seibert, of New York, states as the result of a prolonged investigation, that if milk be filtered through half an inch of compressed absorbent cotton, seven-eighths of the micro-organisms contained in it will be removed, and that a second filtration will further reduce the number to one-twentieth. One quart of milk may thus be filtered in fifteen minutes; however, Lewi found that the souring of milk was not at all retarded by this procedure. Of course efficient filtration, as through a Chamberland filter, is out of the question with milk. Cold is of value for preserving milk for a limited period, but is of no use for the purpose of rendering it germ free.

The various modes of rendering milk approximately sterile by means of heat are therefore, the only ones which are of any practical importance. They may be sub-divided into:

(*a*) *Pasteurization*, where the temperature of the milk is not raised above 158° F.; and

(*b*) *Sterilization*, where the temperature is raised to 212° F.

Various forms of apparatus have been invented for the pasteurization of milk in large quantities. These are chiefly of two types; in the one, such as Thiel recommends, the milk is made to flow over a heated corrugated surface; and in the other, the vessels containing the milk are surrounded by water, the temperature of which can be kept at a definite point for a definite period. The first kind of apparatus is almost useless, for, firstly, in order to render it certain that the whole of the milk is raised to a sufficiently high temperature to sterilize it, the metal must be so greatly heated, that the milk which comes into direct contact with it will be scorched; and secondly, the time of exposure to the temperature of 155° is far too short to be effectual. This has been proved by Geuns, who found that milk which had been treated in Thiel's apparatus still contained from 5,000 to 9,000 bacteria in every ten drops. If pasteurization is to be effectual the milk must not only be heated up to a temperature of 155° F., but must be maintained at this temperature for twenty minutes. Bitter has invented an apparatus for efficient pasteurization, in which the milk is kept at a temperature of from 158-160° for thirty minutes, after which it is rapidly cooled. He gives the following results of the bacteriological examination of five samples, before and after pasteuri-

*H. J. Campbell, M.D., in the *British Medical Journal.*

zation: No. 1, before pasteurization, had an average of 102,600 bacteria in every ten drops, but only two to three after the process was completed; No. 2 had 251,600 before, and thirty to forty after; No. 3 had 25,000 before, and three to five after; No. 4 had 37,500 before and two to five after; whilst No. 5 had 94,000 before, and only two after. These figures have been confirmed by Freudenreich of Berne.

A very simple apparatus is sufficient for household use, the essential parts being: An easily cleansed bottle with a cotton wool plug, to contain the milk; a metal vessel provided with a wire stand at the bottom to support the bottle; and a thermometer, the stem of which passes through the lid of the outer vessel so that the temperature can be ascertained without the cover being removed. The temperature of the water should be slowly raised to 160° F., after which the vessel should be taken off the fire, and should be kept for thirty minutes under a thick cosy. At the end of this period the bottle should be taken out of the water, and put in a cool place so that the temperature of the milk may be lowered as rapidly as possible.

A large number of special appliances have been invented for the sterilization of milk. They may be divided into two classes: Those that are arranged for dealing with the milk in bulk, and those that are adapted for dealing with small quantities of it in bottles. As regards the former the most effective, and at the same time the most economical forms of apparatus are those in which the milk is treated with steam under pressure, the storage vessels being filled and closed in such a way as to make it impossible for any micro-organisms to get in during the process.

In the second type of sterilizer, the milk is placed in feeding bottles, which are immersed, as in Soxhlet's apparatus, in water, or around which steam is passed, as in the apparatus used in the Walker-Gordon milk laboratory of Boston. The disadvantage of this method is, that the cream tends to rise and to adhere to the necks of the bottles, so that a certain proportion of it is left behind after the child has finished its meal.

The advantages of raw milk are the following; the fat contained in it is in a more perfectly emulsified condition, it is more pleasant to the taste, the free and combined carbonic acid (7.5 per cent. and 2.2 per cent. respectively) not having been driven off, the phosphorous and lime salts remain in their normal condition, and, finally, its casein is more digestible than that of milk, which has been heated to 212° F. The great disadvantage of the use of raw milk, in England is, that with our present system of control and management of dairies, it is impossible to insure against the milk becoming contaminated with large numbers of micro-organisms, some of which may be pathogenic. If we had dairies, such as those of the Milk Supply Company of Copenhagen, and the Walker-Gordon milk laboratories of Boston, where direct and efficient control is exercised, it would be worth while to dwell upon the very marked advantages possessed by raw milk for the feeding of infants. In order to render its use safe, however, the cow must be treated with the same care and consideration as a human wet nurse.

Foul milk cannot be rendered wholesome by any amount of household boiling. It is very much easier to sterilize clean milk at a comparatively low temperature than milk which swarms with bacteria at a much higher one. Unfortunately it is necessary for us to consider not only the best means of dealing with milk such as we have it, but with milk such as we get it. This in most cases is rich in bacteria.

Undoubtedly the chief advantage of sterilizing milk is, that all the pathogenic, the majority of the non-pathogenic, and the adult forms of even those bacteria which have especially resistent spores, are thereby destroyed. In my opinion, this advantage far outweighs any disadvantages that there may be to the process. However, prepare cow's milk as we may, we cannot shut our eyes to the fact that it is out of the question to anticipate such good results in the majority of cases, from artificial as from breast feeding. The fat of cow's milk is quite different in composition from that of human milk. Thus we see that human milk differs from cow's milk, not only in the percentage quantity of its ingredients, but also in the molecular composi-

tion of these ingredients; hence we must not blame the process of sterilization for defects which are inherent in the cow's milk itself.

Undoubtedly the chief objection to sterilized milk is, that its casein is less digestible than that of unsterilized milk. In the artificial digestion of diluted milk rich in cream, I found that the casein of the unsterilized milk was digested in about half the time required by the casein of the sterilized milk. Further, there is a difference in the action of rennet, the coagulum in the one case being quite different from that in the other. This is partly due to the precipitation of calcium salts, but not entirely, for if we add hydrochloric acid, and thus re-dissolve these salts, we find that the coagula are still different. This relative indigestibility of the casein of sterilized milk is of the greatest importance, for in most cases it renders it necessary that the intervals between the meals should be longer for infants fed upon sterilized than upon unsterilized milk. Indeed, where there is a certain amount of gastric atony, the infant may be unable to take a sufficient quantity of milk for the purpose of nourishment, and thus may undergo a process of slow starvation.

The experience of cases such as these has given rise to the belief that rickets, and especially scurvy rickets, may be induced by the use of sterilized milk. This is true, I believe, but the cause of these diseases is that the child has been receiving insufficient food, and especially an insufficiency of carbo-hydrates and fats, rather than that there is a "subtle change" in the milk as the result of sterilization. Randolph, of Philadelphia, conducted a series of experiments upon adults, and found that the raw milk had in every case been digested more rapidly than the boiled.

A second, though less important objection, is the fact that the taste and smell of the milk are altered, and although this rarely matters in the case of young infants, it sometimes causes difficulty with older children.

Another disadvantage is, that the greater part of the carbonic acid gas in the milk is driven off, thus inducing an alteration in the composition of the phosphates, and a precipitation of calcium and magnesium carbonates.

Fourthly, some of the fat globules coalesce, the result being that the emulsification is not quite so perfect as in raw milk.

Fifthly, the lact-albumen is coagulated and gives rise to the albuminous skin which forms upon the surface as the milk cools, even if it has not been boiled, and contains entangled in its meshes a considerable quantity of fat, thus rendering the milk correspondingly poor in this most important ingredient.

Sixthly, any leucocytes that may be present in the milk are killed during sterilization; however, as at present we know so little about the *rôle* of leucocytes in milk, we are unable to state whether this is a disadvantage or not.

On the following grounds pasteurized milk is to be preferred to sterilized milk:

First, the digestibility of the casein is only diminished to a slight extent.

Secondly, the taste and smell of the milk are not permanently altered.

Thirdly, less carbon dioxide is driven off.

Fourthly, the condition of the fat remains practically unchanged.

Fifthly, the lact-albumen is not coagulated.

Of late, great attention has been devoted to the subject of the adaptation of cow's milk to the needs of the human infant. I would like to draw attention to the excellent results which have been obtained by the use of Dr. Gaertner's fat milk in various parts of Austria and Germany. Dr. Pollak, in Vienna, writes me that its use has been attended with the best results in cases of rickets. Its mode of preparation is as follows: Dilute the milk with an equal quantity of sterile water in order to halve the amount of casein; centrifugalize the mixture at a temperature of 35° C., and allow the creamy portion of the milk to flow direct into a cooling chamber, where its temperature is reduced to 15° C. The fat milk so obtained contains only half the proteids and milk sugar, but all but 2 per cent. of the fat of the original milk. It is then sterilized in a Popp-Becker sterilizer at a temperature of 102° C., after which it is rapidly cooled down to a temperature of 18° C.; 35 grammes of milk sugar should be added to each litre of the fat milk.

Gaertner's fat milk appears to be as well adapted to the needs of infants as Frankland's humanized milk, whilst its mode of preparation is much simpler. For household purposes the method recommended by Dr. Ashby is both simple and effective. The fresh, clean milk is allowed to stand in the 30 oz. sterilized bottle of a pasteurizing apparatus for two hours, during which time the greater part of the cream rises to the surface; the lower half is then syphoned off and replaced by boiled water, in which an apothecary's ounce of milk sugar has been dissolved. In my opinion in most cases it is better to replace the milk, which has been syphoned off, by thin barley water. Experimentally, I have found that, when barley water is mixed with milk, the curd formed during artificial digestion is more granular than that formed in the mixture of milk and plain water. I have had the barley water of the consistency that I recommended analyzed; the total solid matters only amount to 1.23 per cent., being made up of 0.117 per cent. albuminoids, 1.078 starch dextrin, etc., and 0.035 per cent. of mineral matters. The small quantity of starch is of no great importance, especially when we take into account the fact recently pointed out by Heubner and Zweifel, namely, that the salivary glands of the infant are functional at a much earlier age than was previously thought. It is well, also, as Jacobi has suggested, to add a small quantity of common salt to the prepared milk, as there is less of this important food constituent in cow's than in human milk; in the former only 13.5 per cent. of the ash consists of chlorine, whilst in the latter the proportion is 20.11 per cent.

The plan adopted in the Walker-Gordon and other milk laboratories in America of modifying the milk according to the physician's prescription, is one that might be followed with great advantage in certain cases.

Finally, I would like to point out that one source of great danger in the artificial feeding of infants is the idea so firmly rooted in the public mind that the strength of the milk given should be rapidly increased. Analyses of human milk at different periods of lactation show that its percentage composition does not vary to any great extent, the chief difference being in the quantity secreted. The percentage strength of the cow's milk should only be increased with the greatest caution.

LIBRARY TABLE.

AN AMERICAN TEXT-BOOK OF APPLIED THERAPEUTICS. Edited by J. C. Wilson, M.D., Professor of Practice and Clinical Medicine in Jefferson Medical College, assisted by Dr. A. A. Eshner, Professor of Clinical Medicine at the Philadelphia Polyclinic. Cloth imperial; 8vo.; pp. 1326. Price, by subscription only, $7. W. B. Saunders, Philadelphia.

This volume is not a treatise on etiology and pathology, except incidentally, seeming to aim at a short cut to treatment when the disease is once diagnosed. From this point of view it is better adapted to the needs of that class of doctors who are content to be guided by principles and theories established by others rather than those who are original in their modes of thought and work. Separate articles appear upon general therapeutic measures, but matters of surgical interest have been omitted. The arrangement is based upon pathologic classification, and most of the authors are American, the only exceptions being Rake, who treats of Leprosy, and Laveran on Malarial Fevers, each of them the great authority on their subjects.

The volume is rather cumbersome for the use of the student; too didactic in style, and not sufficiently elementary, and viewed from the standpoint of the general practitioner, is incomplete in some respects. It is open to the general objections which apply to all books of this class which appear in the form of compilations of different authors' work, but such writers as Starr, Stewart, Henry, Wilson, Wharton Sinkler, Osler, Dock, Eshner, Parvin, and Stelwagon are above criticism in the special lines in which they have built up their reputations. The volume will doubtless com-

mand a ready sale, and the careful editing displayed on each page will prove not its least attraction.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume V., "Diseases of the Skin." New York: William Wood & Company, 1896.

Six volumes of this encyclopedic work have now been presented to the profession, and anyone taking even a hasty glance at these cannot but be favorably impressed with the superior quality of the literature. The present volume under review is the fifth, which was forced to appear out of its turn on account of unavoidable delay in the manuscript; but its subscribers will be quite compensated for the waiting by the excellence of the product.

Among the contributors to this volume we find such names as Brocq and Leloir, of France; Crocker, of London; and Kaposi, of Vienna; besides such American specialists as Hyde, of Chicago; Van Harlingen, of Philadelphia; Bulkley, of New York; and Montgomery, of San Francisco.

It is impossible, in the space allotted, to do ample justice to the various contributors or to the work as a whole, but a few words about some of the articles may serve as an exponent to the others.

L. Duncan Bulkley introduces a most interesting section upon the "Parasitic Diseases." These he divides into three classes—diseases caused by animal parasites, those caused by vegetable parasites, and lastly, those produced by micro-organisms of uncertain nature. We note here that psoriasis is included among affections supposed to be caused by cocci, but not definitely so proven. The mulberry coccus is presumed to be the etiological factor in its production. This same disease is amplified by Radcliffe Crocker, of London, in his chapter on "Squamous Affections." He lays considerable stress upon the curative effect of salicylate of sodium or salicin in the treatment of this obstinate disease.

L. Brocq deals with "Papular Affections," in which he includes the various lichens and prurigo. His style is to the point and authoritative, and is worthy of special mention.

In addition to the names already enumerated, Allen and Whitehouse, of New York, and Bowen, of Boston, have all done good work in helping to make this "Twentieth Century Practice" an essential part of the progressive physician's library. W. H. P.

A SYSTEM OF SURGERY. By American authors. Edited by Frederic S. Dennis, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc., assisted by John S. Billings, M.D., LL.D., D.C.L., Deputy Surgeon-General, U. S. A., Complete in four imperial 800 volumes, pp. 3652, with index, 1585 engravings and 45 full-page plates. Price, per volume, $6.00 in cloth; $7.00 in leather; $8.50 in half morocco, gilt back and top. For sale by subscription. Lea Brothers & Co., Philadelphia.

Encyclopedic medical literature is not always the best of its kind. It may be compiled of the writings of representative men in the profession, but no individual of them has his reputation at stake, as would be the case in a work strictly original with himself and published over his own signature. Hence there is apt to be in "systems" of any kind, more or less careless writing, or, at least, less pride than in individual productions. The publication under review seems to possess fewer of the faults of its kind than is usual, and the work is a handsome and quite practical exposition of surgery of to-day, brought up to date in every particular, even the recent discovery of the power of the Roentgen rays being dealt with in an able article by Dr. W. W. Keen, of Jefferson Medical College. A point of considerable value, and one that establishes the fact that the publication has had every opportunity to be abreast of the times in every respect, is the short time occupied in its publication. The last volume in this system appeared in a little over a year from the time of the appearance of the first, and hence the subject matter is new and fresh. Even had any one surgeon been capable of producing a work of this scope, it would have taken years to have gotten it into shape, and in that time much of it would necessarily have become behind the times.

It will be remembered that this work was the particular basis of a recent dispute between medical writers of England and the Continent and those of the United States, the former alleging rank plagiarism on the part of the contributors to the work, and that, hence,

its sale was prohibited in Great Britain. Many of the articles certainly show a great familiarity with foreign authors, but whether of a sufficient degree to justify the accusation of literary piracy would be a hard matter to say, in view of the standing—professional and otherwise—of those concerned. There must of a surety be brains enough on this side of the big pool to write essays of worth in all branches of medicine and surgery without descending to such crude methods of absorption and assimilation as this would suggest. There has not, to our knowledge, appeared a specific statement as to just wherein the "steal" was to be located, but we understand from some of our English contemporaries that the publishers claim that the plagiarism, if any, is limited to the use of a few illustrations from English works which were redrawn and reengraved for use in the work.

Still, laying all these points aside, the book undoubtedly possesses great merit. The illustrations, whether borrowed or original, are profuse and fine, and the paper and print are of the best. Perhaps some of the subjects might have been treated on a somewhat lower plane to meet the needs of the average student and physician, as not all are so thoroughly familiar with elementary detail in each subject as those who have made them matters of special study.

Among the more noteworthy articles are those on General Bacteriology of Surgical Infections, by Professor Welch, of Johns-Hopkins; Professor Senn, on Diseases of the Bones; Professor J. William White, University of Pennsylvania, on Surgery of the Genito-Urinary System; and Professor McBurney on Appendicitis. These are all authoritative on their special subjects, and other articles are of equal value.

A MANUAL OF OBSTETRICS. By W. A. Newman Dorland, Assistant Demonstrator of Obstetrics, University of Pennsylvania; Instructor of Gynecology, Philadelphia Polyclinic. Fully illustrated; cloth; pp. 760. Price, $2.50 net. W. B. Saunders, Philadelphia.

The design of this manual of obstetrics is admirable, and the author's treatment of his subject is exhaustive. The work has also the advantage of being obtainable at any book store, and not being one of those volumes "to be sold by subscription only." The style is at times a trifle prolix and pedantic, but this is excusable, since it is only those who *facile princeps* who can descend to the utmost simplicity without a lurking feeling that the world will suspect that they do not know how to properly place polysyllabic phrases. The fault is one that will mend with age and experience, and in no way interferes with the usefulness of the work. The mechanical work of the volume, like almost all that are issued from the press of this publisher, is excellent, and the manual may be commended not only to the student, but would prove of value to the busy general practitioner desiring a full, yet compact, work of reference.

A MANUAL OF ANATOMY. By Irving S. Haynes, Ph.B., M.D., Adjunct Professor of Anatomy, New York University. Fully illustrated; cloth; pp. 680. Price, $2.50 net. W. B. Saunders, Philadelphia.

Possibly a better title for this volume would have been "A Manual of Dissection," since it deals only with such structures as are studied in the dissecting-room, omitting consideration of the eye and ear, bones and joints, etc., knowledge of which is required of the student as much as of muscles, arteries, and nerves. The illustrations are beautiful, yet the half-tone plates are open to the criticism of indistinctness, a bad matter in a work of this kind. The old idea of semi-diagrammatic drawings in works of anatomy is far more practical. Certain new ideas, obtained by means of composite photographs, are presented in relation to the visceral relations. The indexing leaves nothing to be desired, being unusually full and complete. In fact, the entire work shows painstaking care, and is far above the average of the general manual, though a student should not be advised to depend upon it altogether to the exclusion of Gray, Morris, or Leidy.

LIPPINCOTT'S for November has as its complete novel "An Interrupted Current," dealing incidentally with scientific questions of some interest in a far more reasonable way than is common with the average light novel of the day. The articles completing the number are of the usual high grade.

HARPER'S ROUND TABLE is the ideal publication for youths. Each number seems better than its predecessor. The boy or girl who reads the periodical regularly will acquire a

cultivated literary taste and have no leanings toward blood and thunder in the form of dime novels.

SCRIBNER'S for October is, as usual, at the top notch of monthly publications. A review of the various magazines leads to thought as to the multiplication of graceful, ready writers as compared to the period before their establishment. Verily, *Scribner's*, and its congeners in the field, have done great work, not only in purifying and elevating public taste, but also in educating and bringing to notice literary talent.

HARPER'S WEEKLY deals, as usual, spicily with the political questions of the day, doing effective work in the line of its proclivities ere the opportunity passes with the coming of election day. "The Landlord at Lion's Head," by William Dean Howells, is increasing in interest. The recent article upon the semi-centennial of the discovery of anesthesia was timely and excellent, and well illustrated.

PERISCOPE.

NEWS AND MISCELLANY.

Two cases of specific urethritis in very young boys, which may be of interest not only from a professional but also from a sociological standpoint are reported by Bernard Wolff, of Atlanta, Ga., in *Pediatrics*.

CASE. I.—A poorly-nourished negro boy, three years of age, was brought to my clinic for treatment of frequent and painful micturition of a week's duration. Examination revealed a penis of unusually large size, with a swollen and edematous prepuce, from the everted orifice of which a stream of thick, greenish-yellow pus was issuing. A slide was obtained from this, which was found after staining with carbol-fuchsin to be swarming with gonococci.

The mother of the boy stated that she shared her small house in the negro quarters with a family in which there were a number of half-grown girls and that shortly before the boy had begun to complain of pain on urination, she had detected him in the act of copulating with one of these girls.

CASE II.—A well-developed negro boy, five years old, was brought by his parents for treatment of cystitis that had existed for ten days. There was an almost continuous dribble of urine and great pain and distress in the region of the bladder. A small quantity of pus was obtained by stripping the urethra and stained with methyl-blue. It was found to contain a considerable number of gonococci. The boy's mother expressed no surprise when I informed her of the nature of his trouble and said that she had already suspected it, as the boy slept with a mulatto girl of fourteen and that she had several times been caught in the act of drawing the boy on top of her. When remonstrated with, she had feigned ignorance of the meaning of the reproof. I had an opportunity of examining this girl some time afterwards and found her suffering from vaginitis, presumably of gonorrheal origin.

These cases, while not unique, are of sufficiently infrequent occurrence, especially when the disease is contracted by actual sexual connection and not accidentally or intentionally inoculated, to be of interest. They serve to illustrate the extreme precocity of the sexual instinct in the negro. The truth of the statement, made in a recent editorial in the REPORTER, that the sexual purity of boys was violated more frequently than supposed, and that they should be legally protected as well as girls is well brought out by these cases.

The ecbolic action of sugar was some time ago brought to the notice of the profession by Bossi, and the matter is now followed up by Dr. Kosminski (*Edinburg Medical Journal*), who gives an account of his experiences with this agent. He gave from 300 to 800 grams of sugar daily to pregnant women; from 100 to 200 grams to women in the first stage of labor; and from 100 to 225 grams to patients in the expulsive stage. His conclusions are: (1) Sugar given in large doses to pregnant women at term increases existing uterine contractions, and may even provoke labor; at the same time it causes vomiting and diarrhea, lasting two days or so; and glycosuria, persisting for three or four days. (2) When given in rather large doses at the time of full term or premature confinement it increases the pains of both the first and second stages of labor, and seems also to have a favorable influence on the uterine retraction following delivery; if moderate doses are used glycosuria rarely supervenes, and when it does occur passes off quickly, without hurting either mother or infant. (3) The increase in the pains of labor following the taking of the sugar is not always exactly proportionate to the dose employed, pointing to an uncertainty in the action of the agent upon the muscular fibers of the uterus. (4) Large doses of sugar must be avoided in pregnant and parturient women, since it causes a rather intractable glycosuria. (5) Its employment has no very

great practical importance: but it may be used to increase the expulsive efforts in the second stage of labor, or it may be given after delivery to encourage uterine retraction.

The calomel treatment of typhoid fever is advocated by Dr. Augustus Elliott, of New Haven, who gives the following general rules:

I. Keep the patient in bed until for an entire week the temperature has been normal.

II. Keep him on a sterilized liquid diet as long as he remains in bed.

III. At the beginning of the disease, give ten grains of calomel on alternate days.

IV. Give one grain of carbolic acid and three drops of tincture of iodine, every four hours, during the entire illness.—*Medical World.*

A chronic poisoning by carbon disulphid has been noted among workers in india-rubber factories, and the matter has been investigated by Dr. Stadelmann, of Berlin (*Annals of Hygiene*). Three patients, whose cases were especially under observation after having worked for some weeks in those factories, were seized with giddiness, headache, tremors, drowsiness, loss of energy, and gradual impairment of vision. One of them complained of xanthopsia, and objects moving in the street appeared to him as if seen through a cloud; he also had painful contractions of the muscles and an increasing difficulty in walking or even in standing. Another patient suffered from stammering and fear of walking in the dark, and a further remarkable symptom was anesthesia of certain portions of the skin. All these phenomena were due to carbon disulphid liberated in the factories, and they are quite characteristic, although only a small number of such cases has been reported up to the present time. Some patients declared that their food had a sulphurous taste, and in grave cases insanity ensued. Preventive measures had obviously been neglected, and Dr. Stadelmann thinks special regulations very necessary for india-rubber factories. Workmen showing the symptoms above described ought to be at once removed from the unwholesome atmosphere.

Dr. Thomas H. Manley has recently been appointed Professor of Surgery in the New York Clinical School of Medicine; also Visiting Surgeon to the West-side German Dispensary.

The editors of Mathews' Medical Quarterly announce that with the January issue of that publication its name will be changed to *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases.* This is a change which has been deemed necessary for some time, as it is essential that the title of a medical journal should convey to the reader an idea of its contents, and this has not been the case with its name from the beginning. There will be no change in the policy of the journal in the least. As it will continue to be the only English publication devoted to diseases and surgery of the rectum and gastro-intestinal tract, the articles which will appear in it will be limited to these subjects. The journal will continue to be edited by Drs. J. M. Mathews and Henry E. Tuley, and published in Louisville, Ky.

School hours are, as a rule, too long for the best good of the children, both as concerns their body and minds, says Dr. William Meacher, in the *Charlotte Medical Journal.* How many grown people are there who could go into a crowded room and study for a period of six hours a day? Or, if they could do it in spite of the drowsiness and stupor that comes upon them, how long will it be before their health suffers? The practice of keeping children in the school-room after school hours for the purpose of punishment, is a very unwise one. If the hours of school could be reduced to about four instead of six hours a day, two in the forenoon and two in the afternoon, with the usual intermissions, children would undoubtedly learn more, and with a greater relish, than in the longer hours, especially if teachers could give them the necessary time and attention. To this end we should have more teachers and fewer pupils for each teacher. Then teachers should have the ability and opportunity to learn the peculiarity and basis of each pupil's mind, and be able to lead and direct it in the pursuit of the kind of knowledge for which it is by nature best fitted, whether that be a knowledge of books or "knowledge never learned of schools." Of course all this means much more expense, and less "machine-made" education, at so much "per capita." But life has no higher duty than the preservation of health, both in body and mind. If we are going to win in the fight with the "great white monster," consumption, the school-room is one of the most important points to be looked to.

The non-medical use of salicylic acid as a food preservative is made the subject of editorial mention in a recent issue of *Dunglison's College and Clinical Record.* Its employment in this direction has been semi-officially sanctioned in Great Britain, particularly as an antiseptic preservative in the manufacture of wines. The *Record* says that the question must soon be decided in the interests of human health, and that it is a very good sign that the lay press is discussing the matter with so much interest, and calling public attention to the deleterious effects of the drug. The weight of opinion seems, however, to be opposed to the use of the acid on account of its toxic qualities. Salicylic acid is known to have produced unmistakable symptoms of poisoning, and its effects as a preservative, when added to dietetic preparations, are believed to last after the food is taken into the stomach, thus rendering it much harder to

digest. Moreover, it does not seem proper or justifiable, in any event, to administer to anyone in a disguised form, under the plea of giving him a food, a potent drug, which may disturb, in one way or another, the healthy exercise of some of the important functions of the body.

Two most extraordinary cases, for which they do not profess to account, are related in a recent issue of the *American Gynecological and Obstetric Journal* by Stansbury Sutton and Gordon. October 20, 1892, Sutton removed two large multilocular ovarian cysts from a woman aged twenty-eight. The ligatures lay close to the uterine cornua. On June 10, 1894, the patient gave birth to a male child, weighing ten and one-half pounds. On February 25, 1896, she was once more delivered. Gordon, in March, 1894, removed both ovaries and tubes from a woman aged thirty-three, the subject of chronic pelvic mischief. He believed at the time that no fragments of the ovary were left. From a few months after the operation she menstruated regularly till June, 1895, when she became pregnant, and was delivered of a healthy child in March, 1896. The only explanation is that the stump of one tube must have opened, allowing an ovum from a piece of ovarian tissue to pass through into the uterus. In a second case, where pregnancy followed three years after operation, it was not absolutely certain that both ovaries were removed. A discussion followed the reading of the above cases at the annual meeting of the American Gynecological Society, but no satisfactory explanation of the occurrence of pregnancy was brought forward.

The action of the Roentgen rays is claimed to produce a severe dermatitis without causing pain or any symptom to indicate trouble. The *Western Medical Review* reports a case of an attorney who sustained severe injury to the shoulder-joint, the extent of which it was impossible to obtain. A skiagraph was taken of the joint, the seance lasting about two and a half hours. During the sitting the patient complained of no pain, no burning sensation, and no inconvenience whatever, except the tiresomeness of being so long in one position. In about a week afterwards he began to feel a slight burning sensation, and on examining the back of his shoulder where the rays had been concentrated he noticed a slight redness, an erythema. This gradually increased in intensity, so that in four or five days afterwards he consulted his physician. That gentleman informs us that by that time the dermatitis had resulted in such profound trophic changes that in appearance the wound looked like a severe burn of the second degree, covering a space as large as two hands. For three weeks it seemed almost impossible to control the inflammatory action that was set up, and now, two months after it was first noticed, there is an irregular space, three by four inches in extent, not yet covered by skin.

The strange thing about this case is the fact that there was no indication of trouble at the time the patient was subjected to the rays, and there was no suspicion that any injury would result till at least a week afterwards. The extreme length of time the seance lasted may have been, and probably was, the cause of the dermatitis, but at the same time the conclusion must be reached that there is a subtle influence or action in the Roentgen rays that is not yet appreciated.

A new operation for cleft palate is advised by Dr. Truman W. Brophy, of Chicago (*Medical Record*). He takes the ground that the operation should be performed much earlier than has been the custom of surgeons heretofore. It has not usually been thought advisable to operate for the closure of cleft palate until the child has reached the age of from two to five years. He holds that when the operation is thus postponed the changes in the voice become permanent, and repair of the palate at that time would not favorably influence voice production. His operation consists in freshening the edges of the cleft; then by deep suture of silver wire fixed through a lead plate conforming to the palate, the edges of the cleft are drawn together and so maintained until healing takes place.

A satisfactory remedy for toothache is always acceptable. Dr. Gills, of Briancon, (*Therapeutic Gazette*) reports that he has rapidly relieved toothache due to caries dental by means of an antiseptic solution with which the mouth is to be washed out four or five times. His formula is:

Boiled water.....4 parts.
Van Swieten's solution.....1 part.
Any tooth wash, q.s., to correct taste.

As Van Swieten's solution is merely a 1 to 2,000 solution of the bichlorid of mercury in water, with a very small proportion of alcohol, the mouth wash is simply a hot aromatized 1 to 10,000 solution of bichloride.

The Bender Hygienic Laboratory, in connection with the Albany Medical College, was dedicated October 27th. Addresses were made by Dr. George E. Gorman, Professor A. Jacobi, of New York; Dr. A. Vandervere and Harry H. Bender.

The following method of testing the urine for albumen is given in the *Medical Record* by Dr. Alex. C. Ewing. Draw up into a small glass pipette, or tube, about an inch of the urine, let the finger remain tightly over the top, and insert the pipette into nitric acid, and draw up under the urine about the same quantity of acid, when, if even a trace of true albumen be present, there will appear a beautiful line of demarcation between the acid and urine. This test is as accurate as it is simple, and, besides, is decidedly economical, and far less trouble than all others.